

of medicine doing advanced work. Students in the combined course present the baccalaureate degree before they are admitted to the second year in medicine.

IN accordance with the agreements for co-operation between the Massachusetts Institute of Technology and Harvard University, fifteen of the Harvard professors are to be added to the instructing staff of the institute this year. Their names and departments are the following:—*Mining Department*: Professors Henry Lloyd Smyth, Edward Dyer Peters, Albert Sauveur, George Sharpe Raymer, Charles Henry White and Louis Caryl Graton. *Mechanical Engineering Department*: Professors Lionel Simeon Marks and Arthur Edwin Norton. *Drawing, Civil Engineering Department*: Professors George Fillmore Swain, Lewis Jerome Johnson, Hector James Hughes and George Chandler Whipple. *Department of Electrical Engineering*: Professors Arthur Edwin Kennelly, Harry Ellsworth Clifford and Comfort Avery Adams.

At the University of Pennsylvania promotions include the following: Dr. Bradley Moore Davis, to be professor of botany; Dr. Oliver Edmunds Glen, to be professor of mathematics; Dr. Howard Hawks Mitchell, to be assistant professor of mathematics; Dr. Melvin Reece Harkins and Dr. Dicran Hadjy Kabakjian, to be assistant professors of physics; Dr. Samuel G. Barton, to be assistant professor of astronomy. Dr. Lowell J. Reed has been appointed instructor in mathematics, and Mr. E. J. Lund instructor in zoology.

At Rutgers College Professor Alfred A. Titsworth has been appointed dean of mechanical arts and Professor Jacob C. Lipman, dean of agriculture.

DR. ALEXANDER J. INGLIS has resigned as professor of the science of teaching at Rutgers College, to become assistant professor of education in Harvard University.

GEORGE H. CHADWICK, for seven years professor of geology at St. Lawrence University, is now connected with the department of geology at the University of Rochester. His successor at St. Lawrence is Dr. C. J. Sarle.

DR. CHARLES OSCAR CHAMBERS has been appointed instructor in agriculture, biology and applied chemistry at the George Peabody College for Teachers. He comes from the University of Cincinnati, where he was acting head of the department of biology last year.

DR. PAUL B. CLARK, of the Rockefeller Institute for Medical Research, has been appointed associate professor of bacteriology in the University of Wisconsin, succeeding Dr. Mazyck P. Ravenel, who has gone to the University of Missouri.

DISCUSSION AND CORRESPONDENCE

HEREDITY AND ENVIRONMENT

TO THE EDITOR OF SCIENCE: Some discussion has been held lately in the columns of SCIENCE concerning the question of the influence of monarchs and the relations of heredity to the manifestations of statecraft and warcraft in rulers. Professor Woods has been one of the champions of the view that monarchs and their immediate kin show exceptional excellence in both these lines, and he has based his thesis on a wealth of illustration from history, that, apart from his interpretation, must command admiration as a scientific inquiry.

One point will, I think, be admitted by all who go somewhat deeply into the problem of descent, and, that is, that starting with beings of good physical and mental characteristics, inbreeding will emphasize many of these and produce a well marked and strong race. The Jews and the Irish show this fact. Both have been to a large extent close bred, due partly to religious, partly to geographic conditions. For centuries the Jew was separated from the other races by his adhering to a peculiarly exclusive religious code. The Irish—I refer, of course to the Roman Catholic Irish—were for centuries separated by island habitation, as well as intense religious antagonisms, from their nearest neighbors. Even in the melting pot—the United States—the two strains have been kept well apart from each other and from the bulk of the population. Inter-marriage between Jews and Christians, or between Irish Catholics and Protestants, or even

between Irish and German Catholics are only occasional.

When, however, we come to ascertain the relative value of heredity and environment in determining the character of offspring, it seems to me that it is necessary to use extreme caution, to eliminate, on the one hand, mere coincidence, and on the other hand to avoid confusing the two influences. The development of the germ cell and the fertilizing cell we must consider heredity, but gestation is largely environment, and surely this period is of profound importance to the new being, especially in the case of human beings, with which the period is long and markedly subject to psychic influences. The period of infancy is, so far as rulers, or the highest social classes even, are concerned, a period of special environment, eminently adapted to continue and intensify any qualities distinctly marked in the parents. Monarchs' children are from their birth set apart from the world at large, surrounded by an atmosphere of authority and pretense; surely these conditions must have a large share in determining character. If one feature looms largest in the characters of rulers throughout the ages, it is their ruthlessness, that is, their indifference to the rights and feelings of their subjects. Just as the mass of children learn from their parents and associates to consider the lower animals as having no rights that human beings are bound to respect, so the young prince is taught to regard the mass of his nation.

Nor can we overlook opportunity as an element in favoring the ruler. By the very condition of things, his views prevail. In the light of modern theories, especially, the materialistic conception of history, are not many of the incidents of a given reign merely manifestations of causes within the core of humanity itself, and the monarch a creature of such causes rather than himself a cause? In other words, in ascribing to Louis XIV. a profound share of the development of France, are we not making the mistake of assigning Tenterden steeple as the cause of Goodwin Sands? "There was a man sent from God whose name was John." Is it permissible to say that there

was a man sent from God whose name was Abraham Lincoln? Can any one assert that Abraham Lincoln was any more necessary to the working out of a proper destiny of this country than a hundred of the prominent statesmen, north and south, in his day? I think it has been proved by Adams in his recently published volume, that the success of the Federal forces was almost entirely due to the efficiency of the blockade of the ports of the Confederacy.

In Professor Woods's two volumes on this topic we miss a study of the influence of two important classes of rulers with whom heredity can have little concern, namely, the popes and the presidents of the United States. Chosen under more or less emotional conditions, a long line of pontiffs exhibits striking examples of human excellence and human failings. The latest, and probably the best authority, on this series—the Catholic Encyclopedia—places Gregory VII. as the greatest of them, yet by his own statement he was from the proletarian. Of recent popes, Leo XIII. is the most able; his claim for noble descent was only established with difficulty and there is no ascription to him of blood royal.

Then what is to be said of the great line of American statesmen, drawn from the lower ranks, such as Franklin, Paine, Hamilton, Jackson, Lincoln? It is admitted that the cause of American independence was furthered as much by a journeyman printer and a journeyman corset maker, as by any one.

HENRY LEFFMANN

A FEMINIZED COCKEREL

FROM time to time during the last five years, grafts of various sorts have been attempted in connection with studies of the effects of castration on the domestic fowl. The condition of one of the birds on which grafts have been made is of particular interest.

A Brown Leghorn *male* was castrated completely when 24 days of age and the ovaries from two brood sisters, cut in several pieces, were placed beneath the skin and also within the abdominal cavity.

At date of writing, the bird is as obviously