The population is taken as 39,209,518. It may be added that in 1913 the marriage rate was 151 per 10,000, the birth rate 191, and the death rate 176.

UNIVERSITY AND EDUCATIONAL NOTES

THREE million dollars has been collected by the University of Pittsburgh toward the $10,000,000 required for the erection of the fifty-two story building which it is planned to erect.

THE Neurological Institute of New York will become a part of the new Columbia University-Presbyterian Hospital Medical Center.

THE School of Pharmacy of the Pharmaceutical Society of Great Britain has been admitted as a school of the University of London in the faculty of medicine for a period of five years as from January 1, 1925.

WILLIAM W. STIFLER, acting professor of physics at Williams College, has accepted an appointment as associate professor of physics at Amherst College.

HORACE B. ENGLISH, professor of psychology at Antioch College, has been appointed associate professor of psychology at Wesleyan University. Herbert Gurnee (Wesleyan, '22) will also join the department.

DR. C. LADAME has been appointed to the chair of psychiatry in the University of Geneva in succession to Dr. R. Weber, who has been made emeritus professor.

DISCUSSION

DECAY AND REGENERATION OF RADIO-LUMINESCENCE

IT is well known that the luminescence produced in certain materials subjected to the action of the radioactive rays decreases with time and that the color of the luminescence changes, while at the same time the material itself also changes in color. From experimental work covering more than two years and still under way, we are led to believe that the decrease in luminescence of phosphorescent zinc sulfid, etc., is probably due to the masking of the radiation luminosity by the color which the material acquires, due to the action of the radiation.

For example, small glass tubes containing radon initially glow quite brightly with a yellowish-green light, but the glass soon turns either brown or blue, and in the course of a few days the tubes glow very faintly if at all. If the tubes be heated sufficiently to just discharge the coloration, the glow returns. This operation can be repeated with no apparent change in the property of the glass to glow under the action of the radon rays.

The coloration of the glass is not a surface phenomenon, and the color produced, whether brown or blue, seems to reach a color depth beyond which further radiation produces no apparent increase in the coloration.

Since the observation of the behavior of glass under radiation and the restoration of its luminescence by discharging the coloration by heating, phosphorescent zinc sulfid has been investigated. Here again the visible radio-luminescence and the phosphorescence decrease as the coloration increases, and eventually zinc sulfid, which originally gave a brilliant phosphorescence in daylight, no longer responds, and it is only faintly responsive to alpha radiation. However, on heating this zinc sulfid just sufficiently to discharge the coloration, no difference in any of its properties can be detected between such revived zinc sulfid and some of the same material which has not been subjected to radiation.

This investigation is being continued and a more detailed report will be given later.

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BAUXITE AND SIDERITE

UNDER the caption "Bauxite associated with siderite," published in Volume 35, Number 3, of Bulletin of the Geological Society of America, Mr. E. F. Burchard, of the United States Geological Survey, has published a description of the bauxite deposits of northeast Mississippi, the opening paragraphs of which are so worded as to leave an unfavorable impression of the work of geologists who preceded Mr. Burchard in Mississippi. Besides the various members of the State Geological Survey, numerous eminent geologists from other states and from the Federal Survey fall within this list. While Mr. Burchard was in Mississippi he visited the office of the State Geological Survey and was treated cordially and with due consideration, hence I do not think that he intended to be inconsiderate of this department, or of others, in his remarks.

In the opening sentence of his article Mr. Burchard said, "A new bauxite field in northeastern Mississippi was discovered in an interesting way by J. W. Adams, of Tuscumbia, Alabama, in 1921." Then, after quoting Hilgard's description of what has since turned out to be bauxite, he says:

More than sixty years elapsed between the publication

of Hilgard's description and the utilization of the information. In the interval many geologists had been over the same ground in quest of underground water, clays, iron ore, and petroleum, and presumably had read the report, but it fell to the lot of a non-technical, but keen and persevering prospector to interpret the facts and to bring to light this interesting resource. Geologists may, however, console themselves in the fact that the note as published by Hilgard was clear and accurate and that it eventually pointed the way to a valuable discovery.

In the late summer or early autumn of 1921 I met Mr. Adams at Iuka, Mississippi, not by appointment, but a purely accidental meeting. He wished to show me what he thought was a deposit of bauxite just over the state line in Alabama. On examining the material I stated that in my opinion it was bauxite, but that I would like to see an analysis of it before expressing a positive opinion. Then it was that reference was made to Hilgard's description quoted by Mr. Burchard. I am uncertain whether Adams or myself referred to it, but a letter from Adams dated in February, 1922, says, "You remember telling me, when we were at Riverton Junction (Alabama), last summer, that I should prospect over Mississippi for Al_2O_3." I do not recall the exact conversation, but I do remember telling Adams to give me the results of his examinations in Mississippi; and he accordingly, in the late winter of 1922, sent me a very good sample of bauxite from Pontotoc County.

Now, we do not take issue with Mr. Burchard in giving to J. W. Adams the credit of the discovery, which was due him. Credit for this discovery was freely accorded Mr. Adams in our Bulletin No. 19, "Bauxite deposits of Mississippi," by Paul F. Morse, which was put into the hands of the printer in December, 1923, before Mr. Burchard's article was submitted for publication. What we do find hard to explain satisfactorily is why Mr. Burchard was so careful to emphasize in the opening paragraphs of his article that previous workers in Mississippi geology (including the State Geological Survey) had failed to discover these deposits (and they could easily be overlooked by a geologist not especially familiar with bauxite), and at the same time forget so completely to mention that the Mississippi Geological Survey had, at least in a measure, retrieved its reputation by promptly arranging with the prospecting company to secure the results of their accurate and detailed prospecting, which were prepared by Mr. Morse into a full and valuable report and sent to press in December, 1923, as Bulletin No. 19 of the Mississippi Geological Survey, a month before Mr. Burchard's article was submitted; furthermore, that galley proofs of our report were sent to Mr. Burchard, at his request, as soon as they were available, some of the material and maps of which he used in his own bulletin. It seems to me a lapse of courtesy that Mr. Burchard made no mention of these things.

E. N. LOWE, *Director*
MISSISSIPPI GEOLOGICAL SURVEY,
MARCH 19, 1925

CHANCE AND EVOLUTION

So much has been printed in connection with the rejuvenated controversy on evolution that an attempt to add anything might seem presumptuous. Yet it appears to the writer that one of the most pregnant causes of misunderstanding between scientists and representatives of religion has been overlooked.

It is generally taken for granted that evolution is obnoxious to an adherent of one of the current forms of religion because it teaches that he is related to animals and particularly has "a monkey ancestry." This undoubtedly is the dominant occasion for offence in many cases, but there is a more subtle cause of friction which has resulted in much greater damage than the one mentioned. This is, in brief, the constant employment in scientific and particularly in evolutionary literature of such terms as "chance" and "accident" when dealing with origins. Less is said to-day about the "fortuitous concourse of atoms" which, a few years back, excited wrath in theological circles, but the suggestion of accident is nevertheless constantly made in scientific publications and is no less repellent to one who is taught to view the universe as a product of design.

The worst of this is that the offence is wholly unnecessary and could easily be avoided by a frank explanation of what the scientist understands by those terms. For, unless he is unpardonably superficial, he never intends chance and accident to be taken in the sense ordinarily assumed by the man in the street, that of something "hit or miss." In every department of research law is found to rule supreme, and it is in the confident belief that law will continue to be found so ruling that scientific investigation is pursued. If of a hundred facts only four fifths are to-day placed under laws, the scientist does not suppose the remaining one fifth to be beyond the reign of law but that he has not yet discovered the law or laws to which they respond. Chance and accident do not connote to him anything philosophical as opposed to design; they merely signify that the source of the data to which these terms are applied is indefinite. They may be products of design or evolved apart from design, but the student's intention is merely to pigeonhole them in an indeterminate category for further examination.

A striking example of this is the old Darwinian expression "accidental variations," which no evolu-