into germination problems, potato virus diseases, and the yield and maturity of potato varieties. The potato Synonym Committee, of which Dr. Salaman is the chairman, has reported a substantial improvement in the nomenclature of potatoes; the council hopes to win the cooperation of seed men in extending this work to cereals. Dr. Beaven referred to the encouragement offered in the last century by the Royal Agricultural Society to plant-breeders and, after tracing the relationship between animal and plant breeding and the influence of Mendel's work, pointed out that field trials of the kind undertaken by the institute would be needed for many years. The difficulty of the task and the value of the results were illustrated by the series of barley trials completed in the past year. Two varieties raised by systematic methods of plant breeding were shown to be generally and significantly more profitable to farmers than any others, and records collected independently by the Official Seed Testing Station and the Essex County Farmers Union not only confirmed this conclusion but also showed that these two varieties are now grown more widely than any others. The study by competent critics of these and the similar results now being obtained at the institute should win for it the support of agriculturists.

UNIVERSITY AND EDUCATIONAL NOTES

THE dedication of the new Markle Museum Engineering Building at Lafayette College will take place on December 6. During the week there will be a conference on mining engineering and a series of lectures by prominent engineers.

A GIFT of $100,000 to the building fund of Boston University has been made by Dr. William E. Chenery and Mrs. Chenery. Dr. Chenery is a nose and throat specialist of Boston and a lecturer at the medical school of the university, of which he is also a trustee.

DR. L. V. HEILBRUNN has become associate professor in the department of zoology at the University of Pennsylvania. Last year the courtesies of the department of biology at the Washington Square College of New York University were extended to him and he carried out there work on the effect of temperature on the viscosity of amoeba.

EARL W. HENDERSON, of the University of Missouri, has been appointed head of the department of poultry husbandry at the Iowa State College.

PROFESSOR P. H. H. GRAY, a graduate of Queen's College, Oxford, has been appointed head of the department of bacteriology at Macdonald College (faculty of agriculture, McGill University) and has recently arrived to assume his duties. He goes to Macdonald from the Rothamsted Experimental Station, where he has been engaged in research work in soil microorganisms and general microbiology.

DR. H. W. DAVIES, lecturer in physiology in the University of Leeds, has been appointed to the chair of physiology in the University of Sydney.

DISCUSSION

IS THERE AN AGE DEAD-LINE IN THE SCIENTIFIC AND ENGINEERING PROFESSIONS?

RECENT articles in various periodicals have called attention to an age dead-line, not only in manual occupations, but also in sedentary positions. Among the causes to which this situation is attributed are physical condition, retirement pensions, decreased productivity, liability to injury, and group insurance, all of which are said to militate against the employment of men over forty.

The general subject of unemployment in the scientific and engineering professions has aroused considerable discussion recently, as evidenced by several notes in the scientific journals. It is, therefore, of timely interest to consider whether or not conclusions regarding an age dead-line drawn from mass data on employment as a whole can be accepted without question as applying to the scientific world, since in certain respects the technical man occupies a position apart.

The comparative newness of the technical professions and the remarkable expansion of industries involving science and engineering have resulted, in the past few years, in an unprecedented demand for scientists and engineers. This demand has been augmented by the fact that many manufacturers have come to realize that research and development work are an investment. Such executives now adopt a more patient and sympathetic attitude toward the technical man. Experience has shown them that just as industrial research has made many important contributions to theory, so does disinterested investigation often give findings of great commercial value. That is to say, any research whatever has a reasonable chance of being profitable.

At this point it should be noted that the organization and personnel of the scientific and engineering

professions are such that comprehensive data on employment are not readily available. Any general conclusions must, therefore, be an integration of the experience of those having contact with comparatively large numbers of technical men.

In view of these considerations we feel that the conditions observed at Mellon Institute will be of general interest. Because of the size of our research staff—about 175 men, chiefly chemists—a large file of applicants is constantly maintained in order to provide candidates for future vacancies. Our records show that comparatively few older men have made application, and that, with few exceptions, these cases are men now employed who, for various reasons, are desirous of changing their positions. In other words, we do not feel that the age dead-line has yet become a vital factor in technical unemployment.

An analysis of our applicant file into age groups has given the following data:

Age range	Percentage of total number of applicants
20–25	30
26–30	33
31–35	15
36–40	13
41–45	3
46–50	4
Above 50	2

The significance of our records is qualified by the fact that our fellowship candidates are to some extent limited to younger scientists desirous of pursuing research careers, but, at the same time, it must be realized that our research staff requires not only recent graduates as fellowship assistants, but also older men, with well-established reputations, as industrial fellows and senior industrial fellows. In addition, because we have often been of assistance in placing men in plant and executive positions, we receive many applications from men not interested in research institution posts.

The older men who apply to us for positions may be classified in the five groups which are briefly defined as follows. (1) Frequently specialists in their respective fields, although already employed, feel that the institute offers particular advantages for the careers which they contemplate; while our files contain the names of many such men, we often think it advisable to make a special search for a more suitable man for a given position. (2) Teachers in the neighborhood of forty frequently conclude that they are more suited for industrial work or that they need larger salaries to support their families, and accordingly request our aid in securing a more satisfactory type of work. (3) Similarly, many older men in the industries become oppressed by the thought that they are in a "rut" and decide to seek positions offering wider opportunities. (4) Sometimes able men are thrown out of work by the combination of two companies with separate technical staffs or by the curtailment of the technical staff in one organization. (5) Finally, the last class, which is fortunately unusual, comprises men who have not made good in teaching or industrial work and who are casting about for new positions; such men are often peripatetic in positional habits.

A pitiful case, now rarely seen, was that of the scientist or technical man who was swept off his feet and much bewildered for a time because of the sudden growth of the specialties and his apparent loss of professional status. Many chemists, for example, awoke to find every division of the science of chemistry preempted and staked off. What had formerly been their sole care had apparently been taken over by specialists—physical chemists, metallurgists, ceramists, chemical engineers, organic chemists, biochemists and others. They not only wondered what finally would be left for them to do, but what the exact status of their activities really was. They failed to realize fully the fact that it was but the natural result of modern advance in chemical science and a part of an orderly, well-organized and highly developed research system—industrial as well as pure-science research methodology.

Our impressions of the conditions obtaining to-day are borne out roughly by the situation in 1921, during the general business depression. While there was then much unemployment among technical men, we do not believe that the older men were discriminated against.

If, as we are inclined to believe, the dead-line has not yet become an important factor in the technical professions, there could be no more opportune time to consider what measures can be taken to combat it when necessary, to insure a dignified and comfortable future for the older men. At Mellon Institute we have been approached by retired chemists and engineers with the request that they be given laboratory facilities to enable them to devote their remaining productive years to research in pure science. This experience suggests a policy which may be of importance in the future, namely, the creation of departments in large industrial laboratories and research institutions in which older men may be able to bring to bear upon scientific problems the experience gained in long years of service to their professions. In institutional research laboratories, in particular, such older scientists, being respected, would be valuable in aiding younger men and in promoting desirable scientific attitude and *esprit de corps*.

Such an addition to the ranks of workers in pure science would not be disproportionate. The men engaged in pure research are already far too few, and the superior and more immediate rewards in applied science are constantly reducing the numbers of those who are on the quest for new facts without regard to their economic application. Mr. Hoover recently estimated the number of American workers in pure science to be three thousand, as against thirty thousand in applied science. And yet these thirty thousand are constantly deriving much valuable help from the basic work of the three thousand.

To conclude, our experience would indicate that at the present time an older man, duly qualified with respect to technical ability and personal attributes, is not handicapped by his age, in spite of the progress made in technical education in recent years, in addition to the other considerations which have been cited as causative of an age dead-line. We offer this view, not with the feeling that it represents the last word on this important subject, but rather with the object of encouraging a profitable discussion based upon experience.

WILLIAM A. HAMOR
LAWRENCE W. BASS

MELLON INSTITUTE OF INDUSTRIAL RESEARCH

DESCRIPTION OF AN ALLIGATOR NEST

WHILE I was in the marsh region of southern Louisiana, some ten miles south of Morgan City, my attention was directed to a nest of the American alligator (*Alligator mississippiensis*) by Mr. Billy Burke, a native of that region. Mr. Burke came upon the nest while hunting frogs along a narrow canal which extended back into the marsh some three miles from the main bayou. A well-worn runway or "run" led from the canal bank to the nest itself, which was about twenty feet back into the marsh.

On July 25, 1925, a party, including the author, visited the nest. Besides the "run" from the canal to the nest, several other "runs" were discovered which led off from the nest into the surrounding marsh. The vegetation immediately surrounding the nest had been either trampled down by the alligator or else removed for the building of the nest. The "runs" were clearly defined and were about a foot and a half wide.

The nest was made of bits of damp, rotting "paille-fine" grass (*Spartina patens juncea*) and "roseaux" (*Phragmites communis*) which had evidently been bitten off by the female alligator. The nest measured four feet in diameter by two feet high. In shape, it was rather square with rounded corners and a flat top. The whole nest was strikingly similar to a muskrat house except that it had a flat rather than a conical top. Also no mud was used in the construction of the nest.

In the center, about six inches below the surface of the top, was the nest proper. In it, covered with the warm, rotting vegetation, were twenty-four white, hard-shelled eggs, cylindrical in shape and rounded at the ends.

The following variations in weights and measurements were found:

Weights—
Variation ..... 59.96 gms to 69.41 gms
Average ..... 63.74 gms

Measurements—
Variations ..... 70.4 mm by 37.7 mm to 75.5 mm by 38.6 mm
Average ..... 72.3 mm by 38.07 mm

The nest had been known by Mr. Burke for about three weeks before our visit, or since about June 14. How long the nest had been there before this time is not known. It may be possible that the nest was built some time previous to the egg-laying in order to give the nest material a chance to heat up for the incubation process.

The female alligator did not appear while we were examining the nest, although according to local accounts the female alligator is constantly on watch to protect her nest from all marauders.

ARTHUR SVIHLA

UNIVERSITY OF MICHIGAN

A STARFISH ATTEMPTS TO INGEST A MINNOW

THE starfish is known completely to ingest small mollusks, later extruding their shells. The most striking of its achievements is to attach firmly, by the tube feet of its rays, to an oyster or clam and exert a slow, steady pull until the mollusk is opened. Then the starfish protrudes its evertible cardiac stomach and digests the soft parts of the mollusks *in situ*. Protrusion of the stomach is facilitated by a pronounced humping of the disk of the starfish.

While at the Marine Biological Laboratory, Woods Hole, Massachusetts, on the morning of July 5, 1929, the writer observed that a starfish (*Asterias forbesii*), with rays averaging eight centimeters in length, had attached to the glass side of an aquarium, and by its tube feet firmly held between two adjacent rays a full-grown Fundulus ten centimeters in length. The head of the fish was partly ingested, but the cardiac stomach protruded about two centimenters along the body. The starfish had a pronounced hump, roughly estimated at one and a half centimeters.

In the preliminary handling of the animals incident to preservation, the cardiac stomach was partly with-