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# THE FACULTY SPEAKS

## **CIVIL ENGINEERING**

By Professor C. T. Morris

The call for civils at the present writing is exceptionally heavy. We have at least a dozen requests for men received within the last week which cannot be filled until the present graduating class is available. The persons making these requests state that the need is urgent and that they do not wish to wait until the middle of June if it is at all possible to secure men before that time.

All graduates of the Department are now employed so far as our records go and we have definite knowledge of all of our recent graduates.

There is a heavy demand for civil engineers in public works of all kinds, conservancy projects, flood control, sewage disposal, water supply, roads and streets, highways, etc. The United States Government is offering civil service examinations at frequent intervals and the departments are having trouble in securing a sufficient number of qualified men for this service.

The success of our graduates in all branches of civil engineering is attested by the fact that none are now available for positions which are open.

## **CHEMICAL ENGINEERING**

By Professor J. R. Withrow

Chemical Engineers render highly diversified service to industries after graduation. Research, development, sales, plant administration, operation and process engineering, plant construction, equipment, and design inspection are general services. Special services are typified by acid and alkali engineering, petroleum engineering, by-product engineering, patents, insurance, high pressure engineering, catalysis, and explosives.

Chemical Industries which are a field of service for chemical engineers after graduation include acid industries, chlorine, alkali, lime, fertilizer, cement, glass, paint, wood and coal distillation, gas manufacture, petroleum, coal tar dyes, vegetable-animal oils and fats, soap, glycerine, gums, explosives, varnish, starch, glucose, sugar, alcohol, textiles, glue, leather, solvents, synthetics, paper, rubber, hardened oils (Crisco), plastics, rayon, lacquer, cellophane, and nylon.

Chemical Engineering is of importance to other branches of engineering in connection with materials, properties modification, waste utilization, and various services such as water softening, lubricants, embrittlement, and new raw materials. Also, Chemical Engineering is the one branch of engineering which produces new raw materials, a vital matter to future industry and civilization.

Some of the larger chemical engineering plants in which many chemical engineers are employed are solvay soda plants, rubber plants, petroleum refineries, cracking plants (pressure gasoline), coal tar product plants, corn

products, soap, synthetic ammonia, rayon and nylon plants.

Important achievements of chemical engineering include solvay soda manufacture, electrolytic caustic and chlorine, dye industry, indigo, nitrogen problem, contact sulphuric acid, bakelite, rayon-silk, explosives for power in quarrying and mining, continuous rayon spinning and elemental phosphorous manufacture.

Special demands put on Chemical Industry by civilization are abatement of pollution of atmosphere with smoke, noise, dust, acid fumes and offensive odors; and abatement of pollution of streams with substances destroying edible fish, rendering waters unfit to drink, rendering water unsanitary and making streams obnoxious; modified explosives and safety development.

Problems facing the future chemical engineer are motor fuel, coal chemical availability, nitrogen and sunlight utilization, complex fermentation products, depleted resources vs. raw materials for scientific and engineering work, food, heat, clothing, shelter, fuel, and power as well as expansion of agriculture as chemical manufacturing basis.

## **PROFESSIONAL AGRICULTURAL ENGINEERING**

By Professor G. W. McCuen

Professional Agricultural Engineering is a five-year curriculum. At the completion of four years of work, a student is awarded a degree of Bachelor of Science of Agriculture by the College of Agriculture, and at the completion of the fifth year, he is awarded a degree of Bachelor of Agricultural Engineering by the College of Engineering. Students who take this curriculum are trained basically in two sciences, viz; Agriculture and Engineering.

There are four major divisions in the field of Agricultural Engineering and might be classified as follows: Farm Structures, Land Reclamation and Soil Conservation, Power and Machinery, and Rural Electrification.

In the field of Farm Structures, a graduate has an opportunity of securing employment with large lumber companies, fabricators of farm structures, and also with steel companies who are now supplying to the farm trade steel structures for agricultural purposes. The student in this field must be fully conversant with the needs and requirements of the farm trade and the design of buildings according to specifications for these needs.

In the Land Reclamation and Soil Conservation field, students secure positions with Federal agencies which deal with this problem. The work in this line consists chiefly of a water control program. Surplus water must be removed from agricultural lands and in many instances, in highly specialized crops, provision must be made for the supplying of supplemental water during drouth periods.

The Power and Machinery work adequately trains a student to enter the field of designing and development work with the major implement companies of this country. The mechanization of agriculture is developing at very rapid strides and the development of machinery to meet these needs is requiring men expertly trained in Engineering and agriculture.

A new field, that of Rural Electrification, is expanding rapidly. Men prepared for this type of work, too, must have a basic training in agriculture as well as in engineering, for rural electrification is the application of electrical energy to the mechanical and biological problems in the diversified fields of agriculture. Demand for employment comes from utility companies and from the Rural Electrification Administration. This field, too, requires engineering, as well as, agricultural training, due to the fact that in many instances the development of new equipment is a problem that can be met only by students who are adequately trained.

## **INDUSTRIAL ENGINEERING**

By Professor John Younger

We in Industrial Engineering are somewhat proud of our record in placing men. We feel that this is due to the nature of our curriculum, in which we have courses that are of great benefit to the young man entering industry.

We find, for example, that firms are especially interested in the fact that our students take accounting, because of the fact that costs play such a large part in the work of engineering. Then they are interested in the course in Time Study Engineering. Time Study is more than the mere ability to operate a stopwatch. A good time study engineer can not only settle wages but he can do much to improve the efficiency of a plant.

Then, again, our courses in Labor Problems and Management of Men show that we are interested in more than the purely technical phases of work. Indeed, one firm, and we think it is typical, states that their big problem today is not use of stresses and strains and design, but rather one of men and labor is receiving a great deal of scrutiny.

So industry is demanding men trained and educated along these broad lines and we are fortunate in being able to meet this demand.

The field is not at all saturated yet. In fact we feel we have just succeeded in scratching the surface.

Another point that is a source of satisfaction to us is our contact with our alumni. We think we can truthfully say that our graduates are loyal friends, not only of the department but also of the University. Out of some 320 total graduates who have passed through our hands, the great majority are at work in Industrial Engineering affairs and constantly keep in touch with our office.

We look forward to the years with a great spirit of faith and hopefulness that our good relation with students and alumni will continue.

## **CERAMIC ENGINEERING**

By Professor A. S. Watts

The field of Ceramic Engineering continues to be very attractive to the young engineer. The industry has come through the depression with greatly increased prestige and the development of new processes and new products has created a demand for young engineers trained to use modern control equipment and methods which are demanded in every progressive plant.

Engineering graduates are rapidly replacing the man with merely industrial experience as plant executives. The rigid specifications which all such products must now meet are demanding much more technical supervision than in the past, resulting in the employment of several Ceramic Engineers where formerly one or two were considered ample. Many industries which considered a technical engineer unnecessary are now endeavoring to secure a trained control man.

The opposition of the American public toward the purchase of German and Japanese wares is reflected in many of our Ceramic industries, and with increased sales, an increased demand for technical help will develop, since only in this way can costs be kept down and hopes of retaining this home market be realized.

The long stagnation of the building industry will shortly face a revival of the structural Ceramic industry including brick, glass, sanitary wares, and tile for walls and floors. This, we anticipate, will create a greatly increased demand for young Ceramic engineers.

## **ARCHITECTURE**

By Professor Charles St. J. Chubb

And so we come to the end of another year with great expectations for those freshmen whom we will hail next fall as sophomores, and with no little apprehension for the welfare of those seniors to whom we say farewell. They are setting sail on a troubled sea, but their ship is staunch. The waves of depression are still running high, but surely there is calm water somewhere ahead. For near ten years the building industry has been at a standstill and great shortages in essential buildings for many purposes exist in every port. Certainly, we cannot cease building for a nation of a hundred and thirty million people.

I still have faith that there is unlimited necessary work ahead for the architect. It ranges all the way from the replanning of cities down to the building of the simplest house for those of low incomes. Our graduating seniors, too, must have faith in society's need for their services. They must set sail as ordinary seamen for the time being, but with confidence in the future. Within recent months there has been a shortage of architectural draftsmen. Many lacking faith in the future have left the profession. Far fewer students are studying architecture in the colleges. If architecture is your ambition, keep your compass set to that destination and remember that Columbus did not turn back.