

by BARRY PEBBLES, '60E

MATERIALS ENGINEERING

Materials are becoming more important in industry each year, and so are the graduates of Michigan's Materials Engineering curriculum.

The materials engineering curriculum, the only program of its type in the country, is one of the newest and smallest courses of study in the College of Engineering, but its graduates are in more and more demand by industry every year.

The materials engineering program, which more or less "grew out" of the Chem-Met department, came into being about 1950-51, largely through the efforts of the late Dean George Granger Brown and Professor Richard Schneidewind. For the last four years, however, the program has been under the direction of Professor Lawrence Van Vlack.

The main factor in the establishment

of the program was a demand by industry for graduates who can understand the properties and behavior of all types of material, and the purposes which they must serve so that he may specify the most satisfactory one for product application. It has been pointed out that such recent developments as gas turbines, rocket engines, supersonic planes, high pressure steam plants, electronic computers, and color television have all required new and previously unknown engineering materials. Many companies report that designs are now being limited by present materials. It is this demand that the College of Engineering set out to fill seven or

eight years ago.

To meet this demand, courses have been carefully selected from the Chemistry and Chem-Met departments to give the student an understanding of the underlying principles of different types of materials. These principles would include utility, properties, application, and control.

After taking basic physics, chemistry, and mechanics courses, a student's work is centered around three types of materials: *metals* and their alloys; *high polymers* such as plastic, rubber, and adhesives; and *ceramics* such as glass and refractories. Concerning facilities for these courses, Prof. Van Vlack reports they are quite adequate. They will be even more so once the next building to be built on the North Campus, the Mechanics, Materials, and Structures Laboratory, is completed. Funds for the final architect's plans are expected to be made available this year, and the actual construction should start in the near future.

No matter what course a student is taking he often wonders just what kind of work he will do after graduation. If he's a materials engineer he will probably find himself in one of four rather closely related groups.

The most likely type of job would be that of *material specification*. This type of engineer is particularly valuable in manufacturing plants where it is desirable to replace present materials for the purpose of improving the product, reducing costs, reducing service failures, due to shortages of specific raw materials, or due to

Presently following the Engineering Science program, the writer of this article, Barry Peebles, is a graduate of Blissfield High School, Blissfield, Michigan. As a writer, Barry was editor of his high school newspaper for two years and wrote for a weekly newspaper for four years. While at Michigan, he has been elected to the position of Vice-President of the Executive Board of the Class of '60E. At the start of his junior year, Barry will switch to Industrial Engineering and will continue in graduate school in business administration. Management consultant work is the goal he hopes to attain in the future.





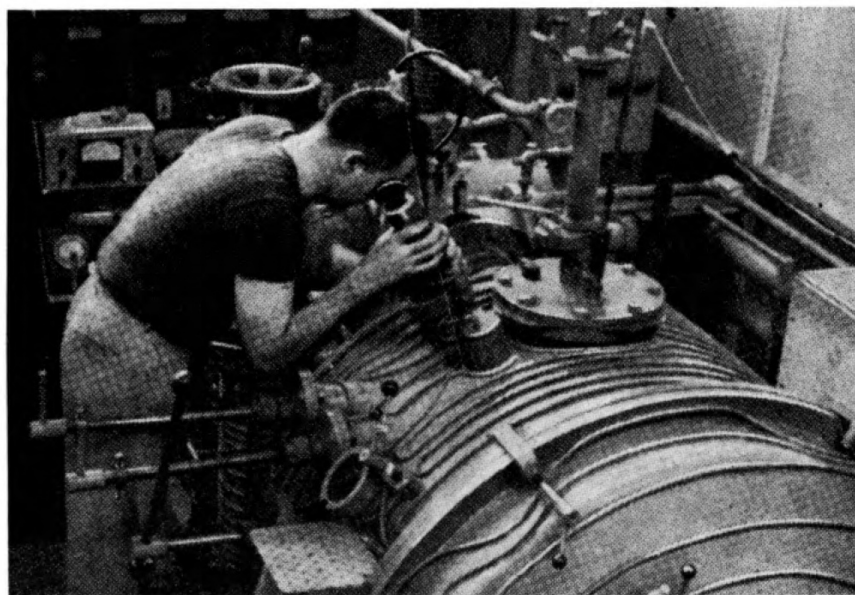
one of the most important of protective coatings, and here a
r and student are examining a research project in which
subjected to controlled weather conditions.

l demands made on the product.
he type of engineer that Pratt and
recently advertised for in the
Technic because "more power-
nes can not be developed until
aterials can be obtained."

aterials engineer might also find
working in *product improvement*.
d be mainly concerned in selec-
control of surface finishes used
acts to increase sales appeal and
e deterioration from heat or cor-

ct development is another area
aterials engineers. Industry is em-
many men who have the training
nity to develop new and useful
to be made of the material his
ion is manufacturing. Since this
work is basically research, a grad-
ree would be almost a necessity.
reason the college of Engineering
ers both a masters and doctors
n Materials Engineering. Even
ew short years that the program
in existence one student is al-
ll along on his work towards a
egree.

ourth area in which a material
might work is in the field of
contact. He would be primarily



Vacuum melting has opened up new horizons for development of alloys.

responsible for adapting his company's
product to that of the industrial consumer.

Just what does the future hold for a
materials engineer? Prof. Van Vlack
points out that the outlook is very bright.
At the present time the pay scale is very
similar to that of metallurgical and chemi-
cal engineers. The demand for materials
engineers is definitely going to increase,

according to Prof. Van Vlack, because
"the trend is more and more toward the
study of fundamental characteristics of
materials." With this fact in mind it is
obvious that one of Michigan's newest
and smallest curriculums and its gradu-
ates are going to become more and more
a permanent part of the engineering
scene.