brilliant and industrious student and quickly attracted the attention of his masters. His early studies were in pathologic anatomy. To this branch he contributed the term cirrhosis of the liver, and described the condition to this day designated as Laennec's cirrhosis.

In 1816 Laennec was appointed chief physician to Neckar Hospital. In this year Laennec made his great discovery, the stethoscope. "I happened to recollect a simple and well known fact in acoustics." That was the mainspring for the discovery of an instrument ever since the constant and most common tool of the physician. The "fact in acoustics" was simple and well known, but no one before had thought of its application to the collection and transmission of the sounds in the human machine—no one, if we except that rare and inspired genius Robert Hooke, who intellectually anticipated so many epoch-making discoveries in the numerous branches of science.

In the simplicity of the underlying principle, the discovery of the stethoscope parallels the invention of percussion, credited to Avenbrugger, the son of a wine merchant. He too remembered "a simple and well known fact in acoustics," that when one taps a wine barrel below the fluid level it sounds dull, if tapped above, it sounds hollow.

It was Corvisart, the teacher of Laennec, who by his translation of Avenbrugger's "Invention Novum ex Percussione Morbos Detegendi" brought percussion to the notice of the medical world, and it was Laennec, Corvisart's pupil, who invented the second instrument for thoracic examination, without which, as Otis said, "we could hardly have arrived at any degree of precision or certainty in thoracic pathology."

THE SHEDD AQUARIUM

APPROXIMATELY 131 permanent exhibition tanks, which will contain a greater variety of fish than is shown in any aquarium now in existence, will be built into the Shedd Aquarium in Grant Park, which is being constructed at a cost of three million dollars, according to an announcement made by George Morse, director, and Walter H. Chute, associate director.

These tanks will range in capacity from 375 to 13,500 gallons of water, with a total capacity of about 350,000 gallons. In addition there will be about 80 tanks in which a reserve supply of fish for replacement purposes will be kept. Approximately 900 lineal feet of glass will be used for the tanks. Two reservoirs will be built with a total capacity of 2,000,000 gallons of water, half fresh and half salt.

The New York City Aquarium, now the largest in the world, has 89 tanks with 455 lineal feet of glass and 29 reserve tanks; Philadelphia, 114 tanks, 511 lineal feet of glass and 36 reserve tanks; London, 90 tanks, 500 lineal feet of glass, and Brighton, England, 50 tanks, 750 lineal feet of glass and no reserve tanks.

The permanent exhibition tanks will be about equally divided between fresh and salt water. In addition there will be a small hatchery for exhibition purposes only and a larger hatchery for actual hatching as well as a balanced aquarium room of about 50 feet in diameter. In this room will be exhibited representatives of the small fish of the world.

Five separate systems of water are planned. One will be a natural fresh water system with 43 tanks in which will be exhibited native fishes of Illinois and surrounding states and such other fishes as are found in water of this nature.

An artificially refrigerated water system of 12 tanks will be used for showing trout, salmon and other cold-water fish. A heated fresh water system of 11 tanks will be used for tropical fresh water fish.

Two systems of salt water will be installed, one refrigerated and the other heated, the former to have 22 tanks and the latter 43 tanks. In the heated system will be shown multi-colored fishes from Florida, Hawaii and other tropical waters. The refrigerated system will be divided among native fishes of the Atlantic and Pacific coasts of the United States.

Two of the largest practical tanks are in the specifications. Each tank will be 30 feet long, 10 feet from front to rear and six feet in depth. Larger tanks are not practical because of the limitation of vision. In these tanks will be kept representatives of the giant fishes. One tank will be devoted to jewfish—a giant salt water member of the bass family—sharks and other large fish, while the other tank will hold sturgeons, catfish and muskallunge.

MATHEMATICS AT PRINCETON UNIVERSITY

EXTENSION of the department of mathematics of Princeton University, with the object of building up a tradition similar to that held by the Mathematical Institute of Göttingen, Germany, is recommended in a report just made public by the Princeton Fund. The report says Princeton has played a leading rôle in the advancement of mathematics in this country since the end of the nineteenth century and has the beginnings of what may become a brilliant mathematical tradition.

"For many years there have been frequent complaints that there is no school of applied mathematics in the United States," according to the report. No serious attempt, however, has been made to establish such a school in the proper manner, that is, by developing tendencies which have set spontaneously in this direction. There is now opportunity at Princeton to make such a development.

The statement alludes to the mathematical tradition of the Göttingen Institute, which is said to have been built up by a group of men of all ages, who have been working together so that necessary replacements have been made gradually without interrupting the continuity of the personnel.

The Princeton Fund states that a similar history could be realized at Princeton "if the opportunity which has come to the university is assured prompt and full realization."

The Princeton Fund cites as means to this realization the following: Endowment for research professorships; increase of personnel with schedules compatible with better teaching and more research; a department research fund to meet changing conditions; a visiting professorship; a group of offices and other rooms for mathematical work, both undergraduate and advanced; continued financial support for the "Annals of Mathematics" which has been published for the last fifteen years by the Princeton department of mathematics, and a number of graduate scholarships.

THE GOLDEN JUBILEE OF THE AMERICAN CHEMICAL SOCIETY

THERE have been printed in SCIENCE several notes in regard to the meeting of the American Chemical Society to be held in Philadelphia next week. The general program as now arranged is as follows:

Monday, September 6

9:00 A. M.—Registration Bureau opens in Ball Room Lobby, Bellevue-Stratford Hotel.

9:30 A. M.—Council Meeting—Bellevue-Stratford Ball Room.

2:00 P. M.—General Meeting—Bellevue-Stratford Ball Room.

Address of Welcome:

W. T. TAGGART, chairman of the General Local Committee.

HON. W. FREELAND KENDRICK, mayor of Philadelphia.

JOHN FRAZER, dean of Town Scientific School, University of Pennsylvania.

Response:

JAMES F. NORRIS, president, American Chemical Society.

Addresses:

PRINCE P. GINORI CONTI, "The Development of Chemical Industry in Italy."

IRENE DU PONT, "The Dyestuff Industry, Forerunner of What?"

PAUL SABATIER, "La Chimie Modern et Marcelin Berthelot."

8:30 P. M.—Entertainment, Reception and Dance—Elks' Club, Broad Street above Vine.

Tuesday, September 7

9:30 A. M.—Divisional and Sectional Meetings at University of Pennsylvania (see Divisional Programs).

12:30 P. M.—Luncheon—University of Pennsylvania.

2:00 P. M.—Divisional and Sectional Meetings continued.

8:00 P. M.—General Meeting—Bellevue-Stratford Ball Room.

President's Address, JAMES F. NORRIS, president, American Chemical Society—"A Look Ahead."

Award of the Priestley Medal to DR. EDGAR F. SMITH.

Priestley Lecture, DR. EDGAR F. SMITH—"Joseph Priestley."

Wednesday, September 8

9:30 A. M.—Divisional and Sectional Meetings—University of Pennsylvania.

12:30 P. M.—Luncheon—University of Pennsylvania.

2:00 P. M.—Public Meeting at the Academy of Music, Broad and Locust Streets.

Addresses:

IRVING LANGMUIR, "Flames of Atomic Hydrogen."

HUGH S. TAYLOR, "Chemical Reaction of Atomic Hydrogen."

ERNST COHEN, "Caricature in Science."

Presentation of Diplomas of Honorary Membership.

Presentation of Special Award to PAUL SABATIER.

8:00 P. M.—Banquet—Bellevue-Stratford Ball Room—In honor of our Founder Members.

Thursday, September 9

9:30 A. M.—Divisional and Sectional Meetings—University of Pennsylvania.

12:30 P. M.—Luncheon—University of Pennsylvania.

2:00 P. M.—Divisional and Sectional Meetings continued.

4:00 P. M.—Award of Honorary Degrees by the University of Pennsylvania, University Museum Auditorium, 34th and Spruce Streets.

6:00 P. M.—Group Dinners.

8:30 P. M.—Performance of the Pageant "Freedom" at the Sesqui-Centennial Stadium (by invitation of the Sesqui-Centennial authorities).

Friday, September 10

9:30 A. M.—Divisional and Sectional Meetings—University of Pennsylvania.

12:00 M.—Luncheon—University of Pennsylvania.

2:00 P. M.—Divisional and Sectional Meetings continued.

2:00 P. M.—Special boat leaves wharf at the foot of Chestnut Street for excursion on Delaware River.

8:00 P. M.—Boat returns to Chestnut Street Wharf.

On the Sunday preceding the meeting there is an excursion to Northumberland, the home of Priestley, details regarding which have been printed in SCIENCE.