1983

Microbiology and Immunology

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MICROBIOLOGY
AND IMMUNOLOGY

By John W. Vennes
DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

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At the centennial of the University, the Department of Microbiology and Immunology will have existed as a separate department in the School of Medicine for thirty five years. Teaching and research functions in the disciplines of microbiology and immunology were offered previously in the Department of Pathology.

When the department was created in 1948 it was physically located on the third floor of the Old Science Building. A new building for the School of Medicine was completed in 1949--Medical Science Building--which from that time has housed the department along with other basic science departments. Laboratory furniture necessary for research and teaching activity within the department was not installed until 1950.

In 1948 Dr. Richard M. Marwin was named Chair of the newly formed department of Bacteriology and Immunology. Joining him was another recent graduate of the University of Minnesota, Dr. Robert G. Fischer. Both individuals brought new interests in research and teaching to the School of Medicine. Dr. Marwin's interests were in the field of medical mycology and Dr. Fischer's interests were in the area of virology. Both individuals have continued in teaching and research activity within the department.

Dr. Fischer assumed the Chair in the department in 1962 and retained the position until 1981.

The Master of Science degree was first offered in 1950 with Robert O'Brien and John Vennes being the first two students in the program. O'Brien subsequently completed his doctoral degree at Washington State University and Vennes completed his doctoral degree at the University of Michigan.

In 1951 Dr. Glenn L. Hoffman was hired as a third member of the departmental faculty. Dr. Hoffman was a graduate of the University of Iowa and had as his research and teaching interest the field of parasitology. Hoffman left the department in 1956 to assume a position with the U.S. Fish and Wildlife Service.

After completing his Master of Science degree within the department in 1952 Vennes was hired as an instructor. He was granted a leave of absence in 1954 to complete his Doctor of Philosophy degree at the University of Michigan. The degree was granted in 1957. He has remained within the department since that time.

In 1963 Dr. John A. Duerre was appointed Assistant Professor in the department. Duerre completed his doctoral work at the University of Minnesota and held previous positions with the Federal Government at Argonne National Laboratory in Chicago and the Rocky Mountain Spotted Fever Laboratory in Montana. In 1965 Dr. Duerre was awarded a NIH Career Development award. This award paid Dr. Duerre's salary from 1965 through 1975. As a result of this award an additional staff position was available. Dr. James R. Waller was appointed to this position as Assistant Professor in 1966. He completed his
doctoral work at the University of Minnesota and post-doctoral experience at University of Cincinnati School of Medicine.

In 1966 the department was granted a Hill Research Professorship by the Hill (Northwest) Foundation of St. Paul. Vennes was named to the Hill Professorship—funding for the professorship was sufficient only to offset salary, however it did allow the department to recruit an additional faculty member since funds were freed up for this purpose. The Professorship was renewed for another five years in 1971 and continued until 1976. As with other Hill awards in the School of Medicine funding was made available for a ten year period.

As a result of the Hill Professor an additional faculty position was made available within the department. Dr. Fern Probstmeyer was recruited to the Assistant Professorship position in 1967. She remained a single year and was replaced in 1968 by Dr. James J. Kelleher at the Assistant Professor level. Dr. Kelleher completed his doctoral degree at Rutgers University and his post-doctoral activity at Woods Hole Oceanographic Institute.

Since the appointment of Dr. Kelleher in 1968 the department has continued to function with six full-time faculty. However, during the period between 1973 and 1977, with Vennes functioning in the Office of the Dean, the functional level of faculty was at five members.

In 1973 Vennes was appointed Acting Dean in the School of Medicine and Associate Dean for Curriculum. He held the Acting Dean position until 1975 and continued as Associate Dean for Academic Affairs until 1977. He returned to the Department on a full time basis in 1977 and in 1981 was designated Chair of the department.

GRADUATE PROGRAMS

The department has always maintained a small, but quality graduate program. Initially the Master of Science degree was offered; the first degree being granted to O'Brien in 1952. The Doctor of Philosophy degree program was initiated in 1963; Harvey Holm, presently employed by the Environmental Protection Agency in Athens, Georgia, was the first recipient of the degree in 1969.

Nine additional doctoral degrees have been awarded since 1969. Thirty-seven master's degree have been awarded since the first degree was given in 1952.

Support for graduate programs within the department has come from research grants, a training grant awarded by the National Institutes of Health was operative in the department for fifteen years, graduate teaching assistantships offered by appropriated funds, and on occasion contract work with several governmental and industrial agencies.

Graduates of these programs have been employed by other academic institutions (12 individuals); industries (1 individual); hospital public health laboratories (9 individuals), other areas (11 individuals), or continued in their training completing their degrees in medicine (5 individuals).
RESEARCH PROGRAMS

Research activity in the department was initiated with the formation of the department in 1948. Both Fischer and Marwin were recipients of grants from federal agencies. Over the thirty-five year history of the department, funding for research activity has come from many sources. They include the National Institutes of Health, the National Science Foundation, the National Cancer Institutes, numerous private foundations, several industries, and state and local health departments.

In 1974 the department was awarded the University Award "for excellence in research and creative work".

Areas of research in the department have included:

1. Virus transmission by arthropod vectors
2. Effects of surface-active agents on growth of pathogenic fungi
3. Bacterial physiology
4. Vitamin transport
5. Clinical bacteriology
6. Microbiology of industrial wastes
7. Microbiology of domestic wastes
8. Microbiology of fresh water lakes and streams
9. Nutrition and immunity
10. Nutrition and microbial infections
11. Diagnostic microbiology
12. Methylation reactions in microbial and animal systems
13. Virus-induced cancers in animals
14. Murine leukemia virus studies

Over four million dollars have been received from non-appropriated funds by the department to support research and teaching programs. In some cases these monies were for collaborative activities with departments within the School of Medicine, departments within other colleges in the University and to support cooperative research with the State Department of Health, municipalities in North Dakota and industry.

TEACHING PROGRAMS

At the centennial of the University, the department finds itself active in many teaching programs. Undergraduate courses are offered to students in the college of nursing, the medical technology program, dietetics, and in a variety of other disciplines including biology. Four separate courses are offered during any given academic year to accommodate these undergraduate students.

At the present time the new curriculum in the School of Medicine presents courses in Microbiology and Immunology at the sophomore level. Microbiology is offered in both semesters of the sophomore year while Immunology is offered only during the first semester.

Courses for graduate students--departmental and extradepartmental--are offered both semesters and occasionally during the summer sessions. Fifteen formal courses are offered. Specific titles of the courses offered are as follows:
Viruses, Clinical Virology, Medical Mycology, Microbial Physiology, Environmental Microbiology, Seminar in Microbiology, Medical Microbiology, Immunology, Microbial Genetics, Biology of Microorganisms, Clinical Microbiology, Advanced Microbiology Laboratory, Virology Laboratory, Bacterial Genetics Laboratory, Research, and Special Problems. Generally these courses are offered every other year, while some (e.g. seminar, research and special problems) are offered each semester.

A non-thesis Master of Science in Clinical Microbiology program was initiated in 1982. This program evolved through a cooperative agreement with the Centers for Disease Control in Atlanta, Georgia. Formal graduate courses are offered each semester through the mechanism of teleconferencing, and are taken by individuals working full-time in hospital and clinical laboratories in North Dakota and surrounding states. Each Fall and Spring the Centers for Disease Control presents an on-campus laboratory experience for participants in the program.

A program entitled Laboratory Education for North Dakota (LEND) has been active within the departments for five years. About 280 individuals in hospital laboratories and clinics participate in the program. Laboratory Science Seminars are offered each semester through the teleconferencing network. Also offered are workshops and programs which can be completed at the site of the participant. The LEND program is co-sponsored by the Department of Microbiology and Immunology and the Department of Pathology.

THE FUTURE

In 1982 the department was renamed the Department of Microbiology and Immunology to better reflect the teaching, research, and service activities within the department. Much as the '50s and '60s and '70s were periods of growth in the areas of gaining a better understanding of microbial metabolism and antibiosis, the '80s sees the development of new activities in the areas of immunology and genetic engineering. Much of the research activity in these areas of "molecular biology" will be carried out by microbiologists. The department looks forward to these exciting fields of activity. The department also will be very active in all aspects of the School of Medicine teaching programs both on-campus and in the Area Health Education Centers in the state.