clinical work in the laboratory, so to speak, in the latter part of the program, I would suspect that in the typical hospital school that the work in classroom would probably amount to about a third to a half of the time. This is a shotgun guess.

Mr. SKUBITZ. Is that in the classroom?

Mr. BLAIR. Yes, sir. The class involves, of course, in our instance full-time registration in the college with which we are associated during the freshman year. During the second year there is a heavy emphasis of didactic work on the nursing subjects, specifically. And, even during the clinical periods there are so-called ward classrooms which are very small, seminars.

Mr. SKUBITZ. What I am getting at is this: Nurses spend a part of their time, about a third of their time in the classroom and the other two-thirds of the time working in the hospital. Is this correct?

Mr. BLAIR. Yes. Under the supervision of the clinical instructor, who is a full-time member of the nursing school faculty.

Mr. SKUBITZ. All right. Now—does the student pay tuition?

Mr. BLAIR. A student pays tuition, yes. In our instance the tuition amounts to a total of about $2,700, I think, $2,700 or $2,800. This is——

Mr. SKUBITZ. A year?

Mr. BLAIR. This is a total of all fees for 3 years. This includes tuition, fees, books, and uniforms.

Mr. SKUBITZ. Does it include dormitory facilities?

Mr. BLAIR. Yes. This is the total cash payment made by the student?

Mr. SKUBITZ. It runs about $900 a year, then, correct?

Mr. BLAIR. This would be the average, yes.

Mr. SKUBITZ. Now, when they are workng on the floor, do they draw any salary for doing this sort of thing?

Mr. BLAIR. No, sir. This is a part of the program and this is viewed as a part of their educational experience because we recognize that as the student is giving this care under the supervision of the clinical instructor, nevertheless, it does have value and we credit this to the budget of the school of nursing.

Mr. SKUBITZ. And the students that work on the floor under supervision, they relieve the head nurse of a lot of her duties, is this not correct?

Mr. BLAIR. I would not say they relieve the head nurses, no. They do care for patients under the supervision of the clinical instructor and to the extent that this service is rendered, it reduces——

Mr. SKUBITZ. If you did not have student nurses you would have to hire registered nurses to do the same job. Is this correct?

Mr. BLAIR. Yes, sir; this is true, and this is why we have made a—we have included this in the arithmetic in our reports on the school. Now, the National League in its accreditation program, frowns on this. So, as of now, the reports going to the school do not include this, but they take a rather dubious view of this kind of arithmetic. They seem to think that this means that we are exploiting the students, I guess, or that we are using her for nursing service rather than for nursing education. We feel in this relationship the nursing service that is provided is sort of an accidental consequence of her learning and we do not want to ignore this in the economics of the school operation.

Mr. SKUBITZ. When I was in the hospital, about the only person I saw were the student aides. I seldom saw the head nurse.

Mr. BLAIR. I was saying the value which they were rendering as they were being supervised by the clinical instructor is a byproduct, I should say.

Mr. SKUBITZ. Our chairman asked about the instructors. Don't the doctors act as instructors?

Mr. BLAIR. I suspect that this will vary from school to school. In our school, and I think in many, in relative terms——

Mr. SKUBITZ. Your school is an exception to the rule, is this not correct?

Mr. BLAIR. Naturally, I do not want to be so immodest as to——

Mr. SKUBITZ. In the average nursing school, who does the instructing?

Mr. BLAIR. I think the fact is, sir, that the overwhelming amount of instruction is by the nurse faculty. I think that the physicians will give instruction on specific disease entities, perhaps will talk about the treatment and perhaps certain medical procedures, but overwhelmingly, the instruction is by the nurse faculty.

Mr. SKUBITZ. The nurse faculty, as our chairman brought out, not only teaches but also serves in the hospital, is this correct?

Mr. BLAIR. Well, now, these may be two different kinds of faculty, but as they serve in the hospital and clinical instructors, they are in a teaching role. They are not rendering service themselves. While the student, as she renders service, as she learns in the process of caring for a patient, and as a byproduct of this, provides patient care. This is not the case with the clinical instructor. The clinical instructor does not care for the patient but is instructing and supervising the student as she does, may do so.

Mr. SKUBITZ. How many instructors do you have in your school?

Mr. BLAIR. Well, the total faculty would approximate——

Mr. SKUBITZ. I am talking about your regular faculty.

Mr. BLAIR. We would have close to 30 nurses on our faculty. Of these there is, of course, the director, a couple of assistant directors, then there are the ones who head up the four major areas of medicine—surgery, obstetrics, pediatrics, and psychiatry—and then, there are those that are assistants and/or clinical instructors. I think that would be it.

Mr. SKUBITZ. Do they draw additional pay for acting as instructors in the school?

Mr. BLAIR. No. This is what they are employed as and what they are paid for. Our school of nursing, in our charter of organization, might look like a department of the hospital, but actually, it is conducted as a separate, what our nurse friends like to call as a single-purpose agency, and its function is to provide nursing education to these student nurses.

Mr. SKUBITZ. Is your school separate from the hospital, a separate building?

Mr. BLAIR. Yes, sir. It is connected by a tunnel for the students' convenience but it is a separate building.

Mr. SKUBITZ. Do you have patients in this area?

Mr. BLAIR. No, sir.

Mr. SKUBITZ. You said it costs about $40,000 to educate a student; is that correct?

Mr. BLAIR. No. I may have created a misimpression. I said the nursing education plan, the facilities, the building, the equipment, the total value of this divided by our number of graduates would mean that the facilities would amount to about $40,000 per graduate.

Mr. SKUBITZ. The cost of construction equipment, faculty—everything?

Mr. BLAIR. Yes.

Mr. SKUBITZ. How many years are you taking to depreciate this building?

Mr. BLAIR. Fifty.

Mr. SKUBITZ. I think that is all at this moment, Mr. Chairman.

Mr. BLAIR. I would like just to offer one final comment. I sense from previous witness that our testimony has largely complemented each other. I thought as I listened to it there was an emphasis on preparation of educators and administrators and certainly this is important. The testimony that I have attempted to present has put its emphasis on the preparation of nurses to care for patients. I think that as we have attempted to say, this is an immediately urgent thing. The urgency we have attempted to emphasize by indicating a desirability of an earlier effective date and the employment of all of our facilities, and the one major point of difference in the testimony of the two witnesses has been on this matter of standards for accreditation, and it is our feeling that it is imperative that if this job is going to be done at all, we have got to use all of these facilities, and since the graduates take the same examination, the public is well protected against any incompetence in this way, we would urge this part of our recommendation especially.

Mr. ROGERS. Thank you very much. I noted your difference in testimony on the accrediting and I might say I have had some interest in this problem and plan to continue it because I think it is very important, proper accreditation. Also I am pleased to note the presence of Mr. Lacey Sharp, the very capable colleague of Mr. Williamson, who has been helpful to this committee in getting information over the years.

Thank you very much.

Mr. SKUBITZ. One question. Are some of these schools closing because you cannot get students enrolled in the schools? Are you having any trouble getting students?

Mr. BLAIR. I think that the reasons why schools close certainly include this to some extent. The fact is that there have been a variety of problems that face the sponsor of a hospital school of nursing. One, as has been implied by both mine and the preceding witness' testimony, is the difficulty of acquiring faculty.

Mr. SKUBITZ. Mr. Blair, let's get away from your school. Let us talk about the average. How many of the 74 hospitals may be closing because girls are not enrolling in the courses?

Mr. BLAIR. I do not believe that this is a major factor, sir. I think the major reasons are problems of recruitment of faculty, problems of finance, problems of frustration, I think, in connection with some of the requirements for accreditation.

Mr. SKUBITZ. My only thought is that you charge $900 a year tuition. A girl goes to classes a third of the day, carry bed pans, fix beds and take guff from patients the rest of the day—maybe this would discourage a lot of girls from becoming nurses.

Mr. BLAIR. The nature of the curriculum, both didactic and clinical, has changed much over the years. I think that now and then we see references to an activity program of students that actually harks back to the early part of this century, and I believe that this is not characteristic of the average program as you are trying to depict it.

Mr. SKUBITZ. Thank you.

Mr. ROGERS. Thank you very much. We appreciate your coming.

Mr. BLAIR. Thank you.

Mr. ROGERS. Our next witness is Miss L. Ann Conley, who is president of the National League for Nursing. The House is in session, but the committee will try to continue until the bells ring. So, we are delighted to have you here and the committee would be pleased to receive your testimony.

STATEMENT OF L. ANN CONLEY, PRESIDENT, NATIONAL LEAGUE FOR NURSING; ACCOMPANIED BY DR. MARGARET HARTY, DIRECTOR OF NURSING EDUCATION

Miss CONLEY. Thank you very much. We will try to be as brief and as efficient as we possibly can.

I am also professor at Wayne State University, College of Nursing, in Detroit. I am pleased to testify today for H.R. 15757, the Health Manpower Act of 1968, on behalf of the National League for Nursing. I have with me Dr. Margaret Harty, who is an NLN staff member. She is director of Nursing Education for the NLN.

Mr. ROGERS. We are delighted to have you, too, Dr. Harty.

Miss CONLEY. Our organization favors the bill. The National League for Nursing is a nonprofit voluntary organization founded in 1952 to foster the development and improvement of nursing education and nursing service. Its varied membership—nurses, allied health workers, private citizens, health agencies, and the schools of nursing themselves—works together to promote quality patient care. A fuller description of NLN is appended to this statement for the record (exhibit I).

We are directly concerned with the goals set forth in the 1968 act and heartily endorse the intent to guarantee health, safety, and good medical care to all Americans.

We support, in particular, title II of the act, nurse training. We point specifically to several provisions not included in the Nurse Training Act of 1964.

We favor, first, the extension of grants to institutions or agencies to help plan or develop nursing education programs (sec. 211).

We favor, second, the inclusion of all three types of nursing schools (associate degree and baccalaureate in addition to diploma) under the institutional grants (sec. 211). Our only concern here is that the new grant formula not penalize those diploma schools of nursing in which enrollments are decreasing. This is happening in some 3-year schools as well as in those which are shortening their programs and thus have fewer students to count. During the last academic year, however—as

Mr. Blair has so well put before you already—72 percent of the graduating nurses were from diploma schools. We have these figures in our exhibit II.

Despite decreasing enrollments, accredited diploma schools will need continuing assistance for some time to come to make their needed contribution to the nurse supply.

We favor, third, the removal of the statutory ceiling on formula grants, special project improvement grants (sec. 211), and nurse teacher traineeships (sec. 221), and the increase in maximum annual loans to students, together with the more liberal provisions for the cancellation of those loans (sec. 222). If there should be need to limit funds appropriated for loans in this year of tightening budgets, we urge that priority be given to graduate students in order to insure the leadership essential for the best education and utilization of the current and future nurse supply.

My organization must, however, respectfully object to the insertion of the phrase "or by a State agency," in Part D: "Definition of Accreditation," section 231. We raise our objection for two reasons:

First, the specific meaning of "State agency" is unclear and could conceivably refer either to a State board of education, State board of nursing, or some other State agency.

Second, standards set by such State agencies as boards of nursing vary widely from State to State; these standards are, in any case, aimed at minimum acceptable achievement rather than at excellence in educational preparation.

In raising this objection, Mr. Chairman, I am speaking particularly for the 1,043 schools of nursing included in the membership of the National League for Nursing. I am also endorsing the testimony of the American Nurses Association in its support of national accreditation as the basis on which a nursing education program should be declared eligible to receive Federal funds under the Health Manpower Act of 1968.

These 1,043 schools representing every constituency in the United States have joined together voluntarily through the mechanism of the National League for Nursing to improve nursing education so that patient care services will reflect the best that nursing can provide. In so doing, they conduct a continuing program to improve nursing education across the country—to help schools of nursing meet and maintain high standards.

The nursing school members of our organization participate in voluntary accreditation through the league as one means of improving their own education programs and, at the same time, stimulating all schools to similar self-improvement efforts.

Their belief in accreditation is not limited to nursing education. They are applying what the former executive director of the National Commission on Accrediting, William K. Selden, has described as society's call "for imagination and enlightened initiative in the establishment and enforcement of academic standards . . ."[1]

In doing so, nursing schools assume responsibility for self-evaluation and voluntarily submit themselves to judgment by their peers. Standards of educational excellence are developed and maintained in this

[1] Selden, William K., "Accreditation—The Struggle Over Standards in Higher Education." New York: Harper & Row, 1960, p. 92.

way by most professions which deal with human life and welfare—medicine, dentistry, for example, as well as nursing.

Voluntary national accreditation, then, Mr. Chairman, is nursing education's response to its own challenge—to provide the best possible nursing education in this country, aiming ultimately only at high quality in patient care. We feel certain that the intent behind the present bill is the same. We believe that the purposes of the proposed legislation can best be accomplished by making Federal funds available to those schools which are already meeting, or show promise of meeting, standards of excellence they, themselves, have determined to be reasonable and universally attainable.

These are the schools which qualify for full accreditation or for reasonable assurance of accreditation within the framework of the National League for Nursing. These are the schools which have the greatest potential to expand their enrollment and reduce attrition rates. These are the schools which can prepare the types of nurses you would want to care for your families and yourselves.

The National League for Nursing is recognized officially as the national accrediting agency for nursing education by the National Commission on Accrediting for bachelors and masters degree programs in nursing and as an auxiliary accrediting association at the associate degree level. The Office of Education and the American Nurses Association, the professional organization of registered nurses, officially recognize the National League for Nursing as the national accrediting agency for all nursing education programs. This recognition comes to the league as the administrator and coordinator of nursing education accreditation on behalf of all schools of nursing.

Nursing schools—both members and nonmembers of NLN—have rallied to this voluntary system of accreditation. Approximately 61 percent of the 1,269 programs preparing registered nurses now have national accreditation. The figures are included in exhibits II and III.

Another 12 percent have reasonable assurance of accreditation, assuring their eligibility for Federal funds, and indicating that their standards are such that they will soon be ready to seek full accreditation (exhibit No. IV).

Further evidence of nursing education's respect for peer evaluation is that the majority of masters degree programs in nursing make graduation from an NLN-accredited baccalaureate program a prerequisite for acceptance of students.

At the last count, of the 265 nurse faculty with doctoral degrees employed by colleges and universities, 221 were in accredited programs (exhibit No. V).

In hospital-based diploma schools, 1,539 of the 1,753 faculty with masters degrees were in accredited programs (exhibit No. V). This is because the best qualified faculty ususally seek positions in schools whose academic standards and whose student bodies will make the best use of their knowledge and abilities as teachers.

In these days of rapid growth in higher education, students are aware that they should seek the best possible education for whatever field they choose. They know that accreditation means high standards. For this reason, accredited programs in nursing find it easier to attract qualified students who will reap the most benefits from their education, as already stated by Dr. Cohelan. Right now, NLN accredited pro-

grams enroll 75 percent of all the students in schools preparing registered nurses (exhibit No. II).

Graduates of nationally accredited nursing programs show better results on their State licensure examinations than those from nonaccredited programs. During the past 5 years, the proportion of failures for graduates of nonaccredited programs was approximately twice that for graduates of accredited programs (exhibit No. VI).

The State licensure examination, which is the same across the country, must be passed before a nursing graduate has the legal right to practice as a registered nurse.

Nursing schools were quick to respond to the challenge of the Nurse Training Act of 1964, with its provisions that Federal funds should be made available to nationally accredited schools or to schools with reasonable assurance of meeting the criteria for national accreditation. Reasonable assurance is the method by which schools with the potential for developing quality nursing programs can become eligible for funds to help them attain the high standards required for full accreditation. Through NLN, schools set in motion new procedures for granting reasonable assurance of accreditation to programs which had not yet sought national accreditation. From the incepiton of the Nurse Training Act to January 1, 1968, 253 programs out of the 314 which applied, were granted reasonable assurance by NLN. Of these 253, 104 are now fully accredited by the NLN, and a further 41 have applied for national accreditation (exhibit No. IV). If I may make an aside, I think the time involved in this makes this achievement phenomenal.

This same flexibility guides the league in its reactions to the many factors affecting both education and nursing today. Under a recent arrangement, the National Commission on Accrediting recognized the league "to engage in agreed to eligibility determination procedures for Federal funding (of associate degree programs) in cooperation with the regional accrediting associations" as well as to grant formal program accreditation to associate-degree programs seeking specialized accreditation from NLN. To date, the six programs which have applied have been declared eligible for Federal funds under alternate procedures worked out with the regional accrediting associations.

The testimony which I have given here today, Mr. Chairman, is aimed at supporting the belief that through channeling Federal funds to schools meeting the criteria for national accreditation, as set by their peer group, or to schools manifesting reasonable assurance of achieving such standards, the basic aim of strengthening nursing education and increasing the numbers of qualified graduates can best be met. This will mean added protection for patients, since they will benefit from higher standards of nursing care.

I have been speaking not only as president of the National League for Nursing, but as an American citizen—a member of the vast general public in whose hands, ultimately, rests the responsibility for patient care in this geat Nation. On behalf of all your constituents, including each individual and agency member of the National League for Nursing, I call upon the Congress to see that funds requested under this Health Manpower Act are expended in a way that will guarantee quality patient care. This can be achieved best by making national accredi-

tation, or reasonable assurance thereof, the requisite for nursing school eligibility for Federal funds under title II, section 231, of H.R. 15757.

Full data and other exhibits substantiating or enlarging upon points I have made are appended to this report. I respectfully request that they appear in the record. Also attached is a folder entitled "Nursing Education Accreditation—A Service of the National League for Nursing." I request that this be printed in the record, too.

(Exhibits and booklet referred to follow:)

EXHIBIT I

ROLE AND FUNCTIONS OF THE NATIONAL LEAGUE FOR NURSING

The National League for Nursing is a membership organization, formed in 1952, to improve nursing service and nursing education through cooperative action by nurses, allied professional persons, other citizens, nursing service agencies, and schools of nursing. It fosters community planning for nursing, the development of nursing manpower, and high standards of nursing education and nursing service.

The League has 23,000 individual members and 1,800 agency members. Its individual members are professional and practical nurses, nursing aides, doctors, hospital administrators, educators, social workers, therapists, and interested citizens. Its agency members are nursing schools and nursing service agencies.

Constituent leagues for nursing are organized in most states and localities.

NLN activities are governed by an elected board of directors representing various facets of nursing service and education, consumers of nursing services, and constituent leagues for nursing.

NLN's annual budget of some $3 million comes from membership dues, fees for services and publications, and grants.

NURSING PROGRAM

NLN works to improve organized nursing services in hospitals, public health agencies, nursing homes, and other community agencies. It encourages coordination of public and voluntary community health services and continuing nursing care of patients from hospital to home. It offers consultation, conferences, surveys and studies, and issues publications and reports on a variety of nursing service subjects. NLN nationally accredits community public health nursing services and develops criteria and other tools for hospitals, nursing homes, and other institutions to use in self evaluation.

NLN works to improve nursing education programs in universities and colleges which lead to bachelors, masters, and doctoral degrees; hospital diploma programs, junior college associate degree programs, and practical nursing programs. It provides consultation, information, and publications; conducts conferences for the improvement of curriculums, faculty preparation, student instruction, and evaluation. Through the League nursing schools develop criteria for self evaluation and national recognition. The League is the national accrediting agency for all types of nursing education programs.

TESTING SERVICES

NLN conducts national testing services for nursing. It constructs and processes professional and practical nurse licensing examinations, administers NLN preadministration tests for nursing school candidates, and provides achievement and qualifying tests for nursing students, practicing nurses, and aides.

RESEARCH

NLN annually gathers and publishes statistics on nursing school admissions, enrollments, and graduations; makes studies of costs, salaries, policies, and practices in public health nursing agencies. It undertakes special studies and demonstration projects to yield data on such matters as the career patterns of nurses, administrative practices in nursing, community planning for health services, and teaching content and methods.

INFORMATION

NLN is a clearing house for information about trends in nursing, personnel needs, community nursing services, and schools of nursing. It publishes a wide variety of materials about community planning for nursing, nursing education opportunities for young people, management and teaching, and evaluation of nursing services and nursing education programs.

COOPERATIVE ACTIVITIES

NLN maintains active liaison with some 60 other national organizations. With the American Nurses' Association, it cosponsors a national nurse recruitment program, a film service, and the National Student Nurses' Association.

EXHIBIT No. II–A

ADMISSIONS AND GRADUATIONS FOR BACCALAUREATE PROGRAMS IN NURSING, SEPT. 1 THROUGH AUGUST 31, 1962–63 THROUGH 1966–67, BY ACCREDITATION STATUS

Academic year	Accredited			Not accredited		
	Number of programs	Admissions	Graduations	Number of programs	Admissions	Graduations
1962–63	129	8,192	3,878	54	1,405	603
1963–64	134	8,828	4,466	54	1,442	593
1964–65	141	10,511	4,910	57	1,324	471
1965–66	147	11,701	5,050	63	1,458	448
1966–67	151	11,937	5,613	[1] 70	2,133	518

ENROLLMENTS FOR BACCALAUREATE PROGRAMS IN NURSING ON OCT. 15, 1963–67, BY ACCREDITATION STATUS

Academic year	Accredited		Not accredited	
	Number of programs	Enrollments	Number of programs	Enrollments
1963	129	21,179	54	3,938
1964	134	24,104	54	3,563
1965	141	26,670	57	3,708
1966	147	28,858	63	4,223
1967	151	31,256	[1] 70	5,343

[1] Includes 31 programs with reasonable assurance.

Source: National League for Nursing Research and Development.

EXHIBIT NO. II–B

ADMISSIONS AND GRADUATIONS FOR DIPLOMA PROGRAMS IN NURSING, SEPT. 1 THROUGH AUG. 31, 1962–63 THROUGH 1966–67, BY ACCREDITATION STATUS

Academic year	Accredited			Not accredited		
	Number of programs	Admissions	Graduations	Number of programs	Admissions	Graduations
1962–63	573	27,834	20,399	287	8,600	6,039
1963–64	569	29,929	22,309	271	8,007	5,929
1964–65	574	31,067	21,470	247	8,542	5,325
1965–66	577	31,625	21,514	[1] 220	7,279	4,764
1966–67	577	27,345	23,059	190	5,938	4,393

ENROLLMENTS FOR DIPLOMA PROGRAMS IN NURSING ON OCT. 15, 1963–67, BY ACCREDITATION STATUS

Academic year	Accredited		Not accredited	
	Number of programs	Enrollments	Number of programs	Enrollments
1963	573	71,880	287	21,391
1964	569	72,970	271	20,119
1965	574	74,825	247	18,935
1966	577	73,858	[1] 220	16,793
1967	577	70,299	190	14,114

[1] Includes 22 programs with reasonable assurance.

Source: National League for Nursing Research and Development.

EXHIBIT NO. II–C

ADMISSIONS AND GRADUATIONS FOR ASSOCIATE DEGREE PROGRAMS IN NURSING, SEPT. 1 THROUGH AUG. 31 1962–63 THROUGH 1966–67, BY ACCREDITATION STATUS

Academic year	Accredited			Not accredited		
	Number of programs	Admissions	Graduations	Number of programs	Admissions	Graduations
1962 to 63	5	320	154	100	3,170	1,325
1963 to 64	5	247	154	125	4,214	1,808
1964 to 65	6	337	225	168	5,823	2,285
1965 to 66	19	1,258	667	199	7,380	2,682
1966 to 67	42	2,731	1,378	[1] 239	8,616	3,276

ENROLLMENTS FOR ASSOCIATE DEGREE PROGRAMS IN NURSING ON OCT. 15, 1963–67, BY ACCREDITATION STATUS

Academic year	Accredited		Not accredited	
	Number of programs	Enrollments	Number of programs	Enrollments
1963	5	528	100	5,828
1964	5	365	125	8,148
1965	6	595	168	10,969
1966	19	2,082	199	13,256
1967	42	4,445	[1] 239	16,491

[1] Includes 91 programs with reasonable assurance and 3 programs considered equivalent under the special procedure for eligibility for Federal funds.

Source: National League for Nursing Research and Development.

EXHIBIT NO. II–D

ADMISSIONS, GRADUATIONS, AND ENROLLMENTS IN BACCALAUREATE PROGRAMS IN NURSING (R.N.), BY TYPE OF PROGRAM AND ACCREDITATION STATUS AS OF JANUARY 1968

Accreditation status	Number of programs Oct. 15, 1967	Enrollments Oct. 15, 1967	Admissions Sept. 1, 1966–Aug. 31, 1967	Graduations Sept. 1, 1966–Aug. 31, 1967
Accredited	151	31,256	11,937	5,613
Reasonable assurance	31	2,664	937	242
Not accredited	39	2,679	1,196	276
Total	221	36,599	14,070	6,131

ADMISSIONS, GRADUATIONS, AND ENROLLMENTS IN ASSOCIATE DEGREE PROGRAMS IN NURSING (R.N.), BY TYPE OF PROGRAM AND ACCREDITATION STATUS AS OF JANUARY 1968

Accredited	42	4,445	2,731	1,378
Reasonable assurance [1]	94	7,439	3,814	1,172
Not accredited	145	9,052	4,802	2,104
Total	281	20,936	11,347	4,654

ADMISSIONS, GRADUATIONS, AND ENROLLMENTS IN DIPLOMA PROGRAMS IN NURSING (R.N.), BY TYPE OF PROGRAM AND ACCREDITATION STATUS AS OF JANUARY 1968

Accredited	577	70,299	27,345	23,059
Reasonable assurance	22	1,447	560	487
Not accredited	168	12,667	5,378	3,906
Total	767	84,413	33,283	27,452

[1] Includes 3 programs considered equivalent under the special procedure for eligibility for Federal funds.

Source: National League for Nursing Research and Development.

EXHIBIT III

EDUCATIONAL PROGRAMS IN NURSING, 1967—ASSOCIATE DEGREE, BACCALAUREATE, DIPLOMA, MASTERS DEGREE, BY STATES AND ACCREDITATION STATUS

State	Associate degree		Baccalaureate		Diploma		Masters degree	
	Total programs	Number accredited	Total programs	Number accredited	Total programs	Number accredited	Total programs	Number accredited
Alabama	2	1	2	2	12	11	1	1
Alaska	0	0	0	0	0	0	0	0
Arizona	4	1	2	2	2	2	1	0
Arkansas	0	0	2	1	4	4	0	0
California	41	6	16	15	16	14	3	3
Colorado	3	2	3	3	6	6	1	1
Connecticut	1	1	3	2	16	15	1	1
Delaware	1	0	1	1	4	1	0	0
District of Columbia	0	0	3	2	3	3	1	1
Florida	16	0	5	3	4	4	1	1
Georgia	6	0	3	2	14	9	2	1
Guam	1	0	0	0	0	0	0	0
Hawaii	1	1	1	1	1	1	1	1
Idaho	3	0	1	1	1	1	0	0
Illinois	11	1	9	5	55	41	4	4
Indiana	11	5	6	4	12	12	1	1
Iowa	2	0	2	1	13	17	1	1
Kansas	2	0	2	2	16	14	1	1
Kentucky	9	1	4	3	10	8	0	0
Louisiana	1	1	7	5	7	6	1	0
Maine	1	0	1	0	5	4	0	0
Maryland	8	0	3	3	17	14	1	1
Massachusetts	8	1	6	4	45	38	3	3
Michigan	13	1	7	4	20	16	3	2
Minnesota	3	1	8	6	16	15	2	1
Mississippi	10	0	2	1	5	2	0	0
Missouri	7	1	7	5	18	14	3	2
Montana	1	0	1	1	4	4	1	0
Nebraska	0	0	3	3	11	10	0	0
Nevada	1	0	1	1	0	0	0	0
New Hampshire	0	0	2	1	8	3	0	0
New Jersey	6	1	5	2	33	28	1	1
New Mexico	1	0	1	1	1	1	0	0
New York	31	9	24	15	83	50	11	7
North Carolina	8	0	8	3	22	6	3	2
North Dakota	1	0	3	1	6	5	0	0
Ohio	8	0	7	6	50	42	3	3
Oklahoma	2	0	2	2	8	4	0	0
Oregon	1	0	2	2	3	3	1	0
Pennsylvania	5	1	11	6	95	71	2	2
Puerto Rico	3	1	2	1	8	2	0	0
Rhode Island	1	0	2	2	5	5	0	0
South Carolina	3	0	2	1	5	1	0	0
South Dakota	2	0	3	1	6	5	0	0
Tennessee	7	1	4	3	12	11	1	0
Texas	12	1	7	6	22	13	2	1
Utah	2	1	2	2	3	3	1	1
Vermont	2	1	1	1	2	2	0	0
Virginia	5	0	5	3	22	10	0	0
Virgin Islands	1	0	0	0	0	0	0	0
Washington	7	1	5	4	7	6	1	0
West Virginia	5	1	3	1	8	4	0	1
Wisconsin	1	0	8	3	16	16	2	0
Wyoming	0	0	1	1	0	0	0	0
Total	281	42	221	151	767	577	61	46

Total program figures as of Oct. 15, 1967, 1,269; Number of accredited schools as of Jan. 1968, 770.

Source: National League for Nursing Research and Development.

EXHIBIT IV

DATA ON NLN REASONABLE ASSURANCE OF ACCREDITATION UNDER NURSE TRAINING ACT OF 1964

[From the beginning of the Nurse Training Act (Public Law 88–581) to Jan. 1, 1968, 314 nursing education programs sought reasonable assurance of accred tation from the National League for Nursing; 256 (82 percent) of these received reasonable assurance]

	Total	Baccalaureate and master's	Associate degree	Diploma
Number of programs which applied for reasonable assurance	314	63	146	105
Number of programs granted reasonable assurance	[1] 256	46	[1] 132	78
Number of programs denied reasonable assurance	58	17	14	27
Number of programs granted full accred tation following initial receipt of reasonable assurance	104	17	36	51
Number of programs for reasonable assurance scheduled for accreditation visits in 1968	41	9	25	7
Number of programs denied accreditation after receipt of reasonable assurance	13	1	1	11

[1] Includes 3 associate degree programs considered equivalent under special procedures for determining eligibility for Federal funds.

Source: National League for Nursing Departments of Associate Degree Programs, Baccalaureate and Higher Degree Programs, and Diploma Programs.

EXHIBIT V

FULL-TIME FACULTY TEACHING IN NURSING DEPARTMENTS, SCHOOLS, OR PROGRAMS AS OF JANUARY 1968 BY TYPE OF PROGRAM AND HIGHEST EARNED CREDENTIAL

Type of program by accreditation	Highest earned credential											
	Doctorate		Masters		Baccalaureate		Associate degree		Diploma		Total	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Baccalaureate and higher degree:												
Accredited	203	84.6	2,934	85.4	491	80.9	0					
Not accredited—RA[1]	9	3.8	221	6.4	41	6.8	0	0.0				
Not accredited	28	11.6	280	8.2	75	12.3	2	100.0				
Total	240	100.0	3,435	100.0	607	100.0	2	100.0	5	100.0	4,289	100.0
Associate degree:												
Accredited	5	45.5	271	26.5	91	15.9	1	16.7	2	5.9	370	22.5
Not accredited—RA[1]	2	18.2	347	34.0	177	30.8	1	16.7	5	14.7	532	32.3
Not accredited	4	36.3	403	39.5	306	53.3	4	66.6	27	79.4	744	45.2
Total	11	100.0	1,021	100.0	574	100.0	6	100.0	34	100.0	1,646	100.0
Diploma:												
Accredited	13	92.9	1,539	87.8	4,111	84.1	31	57.4	1,785	76.7	7,479	82.7
Not accredited—RA[1]	0	0.0	16	0.9	78	1.6	3	5.6	62	2.7	159	1.8
Not accredited	1	7.1	198	11.3	701	14.3	20	27.0	481	20.6	1,401	15.5
Total	14	100.0	1,753	100.0	4,890	100.0	54	100.0	2,328	100.0	9,039	100.0
Total:												
Accredited	221	83.4	4,744	76.4	4,693	77.3	32	51.6	1,791	75.7	11,481	76.7
Not accredited—RA[1]	11	4.2	584	9.4	296	4.9	4	6.5	67	2.8	962	6.4
Not accredited	33	12.4	881	14.2	1,082	17.8	26	41.9	509	21.5	2,531	16.9
Grand total	265	100.0	6,209	100.0	6,071	100.0	62	100.0	2,367	100.0	14,974	100.0

[1] Reasonable assurance.

Source: National League for Nursing Research and Development.

EXHIBIT VI

NUMBER OF CANDIDATES AND PERCENT FAILING STATE BOARD TEST POOL EXAMINATIONS FOR LICENSURE OF REGISTERED NURSES

Type of program	Accredited		Non-accredited	
	Number of candidates	Percent failures	Number of candidates	Percent failures
1961–62:				
Baccalaureate	3,127	4	664	7
Associate degree	121	6	772	21
Diploma	17,875	12	5,313	23
Total	21,123	11	6,749	21
1962–63:				
Baccalaureate	3,325	3	612	11
Associate degree	193	4	1,534	15
Diploma	20,411	8	6,504	18
Total	23,929	7	8,650	17
1963–64:				
Baccalaureate	3,696	6	744	19
Associate degree	144	10	1,133	25
Diploma	20,118	13	5,950	24
Total	23,958	12	7,827	24
1964–65:				
Baccalaureate	4,948	6	587	19
Associate degree	219	15	2,807	21
Diploma	23,901	11	6,051	21
Total	29,068	10	9,445	21
1965–66:				
Baccalaureate	4,791	7	521	24
Associate degree	197	21	3,003	24
Diploma	20,268	13	4,242	21
Total	25,256	12	7,766	2
				2

Source: National League for Nursing Evaluation Service.

EXHIBIT VII

NLN ACCREDITING PRACTICES AND CHARGES FOR ASSOCIATE DEGREE, BACCALAUREATE, AND MASTERS, AND DIPLOMA NURSING PROGRAMS

Characteristics	For reasonable assurance of accreditation		For full accreditation	
	NLN agency members	Nonmember agencies	NLN agency members	Nonmember agencies
Length of visit	1 day	1 day	3 days[1]	3 days.[1]
Number of visitors	2	2	2	2.
Schedule of visits	1 visit	1 visit	Every 8 years for associate degree, baccalaureate and masters programs, every 6 years for diploma.	Every 8 years for associate degree, baccalaureate and masters programs, every 6 years for diploma.
Accreditation charges.	$100 plus travel and per diem expense of visitors.	$100 plus travel and per diem expense of visitors.	$50 per day per visitor for travel and daily expenses. This is a prorated charge to equalize charges for all geographic locations.[2]	$1,500 fee.

[1] May be 2 days for associate degree programs.
[2] Annual membership dues (associate degree, $235, baccalaureate and masters, and diploma, $575) support all NLN services, including accreditation.

Source: National League for Nursing.

Exhibit VIII–A

National League for Nursing Procedures—Reasonable Assurance of Accreditation Under the Nurse Training Act of 1964

NEW NURSING PROGRAMS

A visit is planned upon receipt of the following material:

1. (*a*) A statement indicating approval of the educational institution by the appropriate regional accrediting association or evidence that the institution is a candidate for regional accreditation; *or* (*b*) A statement indicating that the

hospital controlling a diploma program is accredited by the Joint Commission on Accreditation of Hospitals.

2. A statement indicating approval of the establishment of the new program in nursing by the State Board of Nursing.

3. Acceptance by the institution of current criteria used by the National League for Nursing for accreditation purposes and statements of intention to continue work toward meeting the criteria and seeking accreditation following graduation of the first class.

4. The philosophy and purpose of the nursing program.

5. The commitment of the controlling institution to support a nursing program specifying the extent of committed financial support by the controlling institution.

6. The names and qualifications of the chairman or director and of the faculty already employed.

7. The plan for recruitment and selection of faculty.

8. The length of program and the credential that will be conferred upon successful completion of the program.

9. The methods to be used in selection and admission of students.

10. The plan of the proposed curriculum.

11. The criteria used in the selection of agencies for clinical experiences for students.

12. The physical facilities (classroom, administrative, housing, if any) currently available and to be provided for the nursing unit by the college.

13. College or school catalog.

EXHIBIT VIII–B

NATIONAL LEAGUE FOR NURSING PROCEDURES—REASONABLE ASSURANCE OF ACCREDITATION UNDER THE NURSE TRAINING ACT OF 1964

ESTABLISHED NURSING PROGRAMS

A visit is planned upon receipt of the following material:

1. A statement from the administrative officer of the institution indicating acceptance of current criteria used by the National League for Nursing for accrediting purposes.

2. A statement from the State Board of Nursing evaluating the nursing program.

3. (*a*) A statement indicating that the collegiate institution offering the program is accredited by or is a candidate for accreditation by the appropriate regional accrediting agency; *or* (*b*) A statement indicating that the hospital controlling a diploma program is accredited by the Joint Commission on Accreditation of Hospitals.

4. A statement of intent to continue to work toward meeting the criteria and seeking NLN accreditation within three years or at the termination of a Teaching Improvement Grant.

5. A statement of the philosophy and purpose of the institution and of the nursing program.

6. Evidence of the commitment of the institution to support a nursing program that specifies the extent of committed financial support by the university, college, or hospital.

7. Information regarding the qualifications and major responsibilities of the dean or director and of each faculty member.

8. The plan for selection, upgrading, promotion, and tenure of faculty.

9. Policies used for selection, admission, promotion, and graduation of students.

10. Current enrollment by class.

11. Number of admissions to program per year for past five years.

12. Number of graduations from program per year for past five years.

13. Curriculum plan.

14. Brief course descriptions.

15. Description of resources and facilities.

16. Methods used to evaluate the program.

(Booklet text follows:)

Nursing Education Accreditation, a Service of the National League for Nursing[1]

Accreditation has been called a way of life in American education. So, too, it is in nursing education—accreditation by the National League for Nursing.

NLN accredits programs of study in nursing offered by senior colleges and universities, junior and community colleges, hospitals and independent schools, and vocational and other secondary schools. NLN's accreditation services are designed to stimulate schools to improve their nursing programs and to provide a mark of recognition for those which meet certain qualitative criteria.

Accreditation as a public service

Accreditation is a public service as well as a service to educational institutions offering programs in nursing. One of its purposes is to provide the public with well prepared nurses. It serves as an aid, too, to students, parents, and counselors in evalunating schools and in selecting nursing education programs. It provides a yardstick by which both tax funds and voluntary contributions can be channeled into high quality education. It assures the community that a school has a competent faculty and administration, that its curriculum meets the standards nursing school faculty themselves know are good and attainable, and that the educational experience will be a profitable one for the student.

Community groups of many kinds are concerned about nursing education and involved in developing new educational resources for nursing. National accreditation makes guidlines to quality in nursing education available to community planning groups.

Accreditation as a service to nursing schools

Nursing schools have rallied to national accreditation since the inception of the program in 1948[2]. The significance of this support is heightened by the fact that national accreditation is voluntary—a school seeks NLN accreditation of its program of study because of the values accreditation holds for the school.

National recognition is one of these. Another is the opportunity a nursing school faculty, going through the accreditation process, has to participate in its own evaluation of the school and to plan and execute changes that will improve the program. As a rule, accredited programs in nursing find it easier to attract qualified faculty and students than do nonaccredited programs. Their graduates customarily score higher on state board examinations to become licensed to practice as nurses than do the graduates of non-accredited programs. Having national standards to meet often helps a school withstand local pressures to initiate or continue questionable educational practices.

Acceptance of accreditation as an instrument for improvement stems from the American tradition to excel, to exceed the minimum expected. State boards of nursing *approve* schools of nursing for the preparation of students qualified to take the state licensing examination to practice as nurses. The criteria that must be met for *national accreditation* are over and above the requirements for legal recognition within a state, and they are established by the schools themselves. Accreditation in nursing education also is geared to the nationwide programs of accrediting in higher education as appropriate. It is *specialized* accreditation, conducted by nurse educators to evaluate programs of study for the purpose of maintaining educational standards in nursing. Thus accreditation benefits to a school are benefits also to the profession in improving the practice of its members.

---

[1] The National League for Nursing is recognized as the national accrediting agency for nursing education by: the National Commission on Accrediting—for bachelors and masters degree programs in nursing; the United States Commissioner of Education—for all nursing education programs; the American Nurses' Association—for all nursing education programs; and the National Federation of Licensed Practical Nurses—for practical nursing programs.

[2] The National Nursing Accrediting Service was established in 1948 to unify the separate accrediting activities of several national organizations concerned with accreditation in nursing. When the National League for Nursing was formed in 1952, the National Nursing Accrediting Service became one of the seven national services, committees, and organizations which merged to form the new organization. Nursing accrediting activities were then centered in NLN.

THE NLN ACCREDITING PROGRAM

NLN accredits all types of nursing education programs—graduate programs for professional nurses at the masters degree level, bachelors and associate degree nursing programs in universities, senior, junior and community colleges, diploma programs offered by hospital and independent schools, and practical nursing programs. For each, accreditation is based on the principle of evaluation by a peer group. The myriad activities involved in evaluation are undertaken by the segment of the NLN membership and staff active and experienced in the type of program under review.

Masters and bachelors degree programs are evaluated by faculty members of accredited programs in senior colleges and universities. Faculty members from these programs develop and review the NLN criteria used in evaluation, make accreditation visits to the colleges and universities, and compose the board of review which makes the decision on a school's accreditation. Whenever possible, NLN visits a college or university for nursing accreditation concurrently with representatives of the regional accrediting associations in higher education who evaluate the institution as a whole. Seventy-one per cent of the baccalaureate programs hold NLN accreditation.

Diplomatic programs are evaluated by faculty members of accredited programs in hospitals and independent schools of nursing. Faculty members of accredited diploma programs develop evaluation criteria, visit schools, and compose the board of review. Sixty-nine per cent of the diploma programs throughout the country are nationally accredited.

Associate degree programs in junior and community colleges, as the newest facet of nursing education, are one of the most recent groups to utilize NLN accreditation services. Associate degree programs are growing rapidly tthroughout the country to meet community needs, and many are yet too new to seek national accreditation. Thus, NLN accreditation of these programs is not yet as well established as for other types of nursing education. The NLN evaluation criteria, however, provide guidelines to quality education in nursing that enable junior and community colleges to establish sound nursing programs. More and more are joining the ranks of accredited programs. As with baccalaureate programs, school visits for NLN accreditation are scheduled when possible, with visits of representatives of regional accrediting associations evaluating the college as a whole.

Practical nursing accreditation was initiated by NLN in 1966 and for the majority of these schools, too, NLN accreditation is a new and largely future goal. Criteria and evaluation procedures have been established, and the first programs approved. In offering national accreditation to practical nursing, NLN recognizes these programs as an integral part of nursing education.

ACCREDITATION IN ACTION

The experiences of a typical nursing school illustrate NLN accreditation methods and the attention to detail, the communications "musts," and the judgmental faculties exercised throughout the evaluation of a school and its nursing program.

First a school applies for accreditation. After doing so it submits a written self-evaluation report substantiating the ways in which it meets the criteria which have been established by and for the type of program it offers. The criteria are published by NLN and are available to all schools. In addition to being a guide for the preparation of the self-evaluation report, they serve as a yardstick by which a school may pace its own improvement efforts and determine its readiness for accreditation.

The self study through which a school faculty goes in order to prepare its report often is considered one of the most valuable aspects of accreditation. Teachers and administrators must look searchingly into the philosophy and purposes of the program and the ways in which the program is meeting the nursing needs of the community. They must analyze and report on the organization and administration of the school, the qualifications of faculty, the curriculum offerings, policies in effect for students in nursing, the resources and facilities used by the school to educate its students, and the methods by which the school periodically evaluates itself.

An accreditation visit then is scheduled at the convenience of the school. At least two persons always visit a school to ensure balanced judgment. Visits may be made by faculty members of the type of program under review, by an

NLN staff member, or both. A college or university may also request a visit from a generalist from a regional accrediting association when a joint visit with this group is not possible.

The purpose of the accrediting visit is to clarify the material in the self-evaluation report, to elicit additional information that may be needed, and to serve as a communications bridge between the school and the board of review which will evaluate its program. At the conclusion of the visit, usually two to three days, the visitors' report is read to the faculty and administration of the school so that they may be aware in advance of all data to be reviewed by the board. One further step is taken to assure this. Following the visit, a copy of the visitors' report is sent to the administrative head of the school and to the dean or director of the nursing program for comments and acceptance before presentation to the board of review.

The board of review which makes the evaluation is composed of nurse educators from accredited programs of the type under review, selected to represent various types of program control and sections of the country. The board approves a program for NLN accreditation for a specified number of years, and those which are accredited and those which are not are sent a written communication outlining the program's strengths and weaknesses. An accredited school may be asked to submit a subsequent report outlining the progress it has made in meeting recommendations of the board.

A school may return for evaluation at any meeting of the board of review or appeal a decision of the board. These procedures, and others in the accrediting process, are designed to assure the school's personnel that every effort is made to judge its program fairly and on the basis of concrete evidence of the way in which it meets the criteria.

NLN annually publishes lists of nationally accredited programs in nursing These appear also in *Nursing Outlook*, the League's official magazine, and many schools tell their communities, through their newspapers and other media, when they have obtained accreditation.

ACCREDITATION COSTS

The cost of League accreditation services is borne partially by the League and partially by the schools. Methods of payment vary with type of program. For instance, senior colleges, universities, and hospital and independent schools are entitled to receive accreditation services, along with other NLN services, for the annual dues they pay for membership. Junior and community colleges and practical nursing programs enjoy subsidized membership dues, and pay a per diem fee for travel and expenses of accreditation visitors.

Non-member schools pay an over-all fee for accreditation services.

NLN's Board of Directors establishes membership dues and accreditation fees and has voted to move toward uniformity in these for all types of programs. Specific information about accreditation fees and membership dues should be obtained directly from NLN.

NLN SCHOOL IMPROVEMENT PROGRAM

Accreditation is only one phase of a broad program conducted by NLN to help schools of nursing meet and maintain high standards. As a membership organization to which both schools of nursing belong as member agencies and nursing school faculty belong as individual members, NLN engages in many school improvement activities.

It offers consultation to schools of nursing to help them with pressing problems. Revision of the curriculum may be one of these. Helping a new school of nursing get underway, assisting in coordination of the facilities of several schools for educating all nursing students in a community, or the use of television in teaching may be others. Educational developments are as legion in nursing these days as they are in other fields. Any nursing school, accredited or not, may call on NLN for consultation, advice, and counsel.

Through conferences, meetings, and workshops, through studies of educational practices and the publication of research findings and other information materials, nursing schools participate in the NLN school improvement program and are aided by it. NLN provides evaluation services for testing applicants to schools of nursing and for use in determining the achievement of students during their school program. League information provides guidance to prospective students.

As accreditation is one facet of the NLN school improvement activities, so school improvement is one facet of the total League program. NLN works also to improve nursing services.

ON THE RECORD

Although NLN accreditation has widespread acceptance as an instrument of improvement in nursing education, NLN seeks constantly to substantiate the effect of its accreditation efforts, for data such as—

NLN accredited programs enroll 75% of all the students in schools preparing registered nurses.

NLN accredited programs comprise 60% of all the nursing schools in the country.

NLN accredited programs attract the best qualified faculty. For instance, of the 254 nurse educators with doctoral degrees employed by colleges and universities, 222 are teaching in accredited programs. In diploma programs 1,331 of the 1,571 faculty with masters degrees are in accredited programs.

ACCREDITATION AND THE FUTURE

"Revolutionary" often is used to describe what is going on in nursing education. Whether the changes taking place and being projected are revolutionary or evolutionary, they are taking place—changes in the systems of control of nursing education, in the assumption of community responsibility for education for a professional field, in the movement of nursing education into the general pattern of education in the country. Accreditation, as a method of evaluating the particulars of present day nursing school practices, will change as nursing education changes. The essential ingredient of accreditation—decision by a knowledgeable body of peers—and the purpose of accreditation—raising and maintaining high standards in nursing education—however are unchanging and unchangeable.

Miss CONLEY. I thank you, Mr. Chairman, and members of the subcommittee, for this opportunity to appear before you. If I can answer any questions, or supply additional information, I shall be happy to do so.

Mr. ROGERS. Thank you very much, Miss Conley, for a very excellent statement setting forth the position of the National League for Nursing.

What has concerned me is whether it is proper policy for the Congress to delegate to a private agency the determination of where Federal tax dollars shall go, and I am not sure on this. If a school is accredited, we all want high standards—if the school is accredited they have reached these standards or acceptable standards. Why should they be the one that continue to get the money? Why should not we give it to those who are not accredited to really help bring them up and increase the quality of education where it is really needed? We do not need to increase it where you have got accredited schools because the quality is there, and yet this—do you see what I mean? This denies funds to the very institutions that need it.

Miss CONLEY. Sir, if just funds would do it I might agree with you.

Mr. ROGERS. Well, this is all we have to go on, you see.

Miss CONLEY. Yes. There is the reasonable assurance step here. If you were to look at the criteria on which reasonable assurance is based (and this is available to you), you would see that these are minimal standards necessary to educate people to give care to the patients in this country.

Reasonable assurance includes really the basic things which a school must have in order to move toward accreditation. You have to have certain basic things or you do not have a school.

Mr. ROGERS. Yes, I understand that, but I would think an institutional accreditation might suffice to qualify for Federal aid to improve specific programs. This is what I am concerned about; and, to allow a private agency in effect, is turning over the legislative authority to say tax dollars will go here or there.

Miss CONLEY. I believe that schools are really accrediting each other; in other words this is peer evaluation. NLN happens to be the organization in which the schools themselves hold membership. Peer evaluation is a very old custom in this Nation. Accreditation has never been an official agency function, approval for licensure State by State has.

Mr. ROGERS. On an institutional basis, regional.

Miss CONLEY. Yes. now frequently.

Mr. ROGERS. Not necessarily a program by program in every instance.

Miss CONLEY. Frequently, Mr. Chairman, a program in nursing education is not accredited because the institution as a whole does not hold regional accreditation. We only accredit programs in accredited institutions.

Mr. ROGERS. But the point I am making is, as long as it is approved by, say, a State agency or a regional agency should it then be denied funds to try to bring it up to standards? And would it be better once it has basic approval as an institution to then allow Federal funds to at least go in there? They can work for accreditation because every institution, I would think, would want to be accredited. In other words, what I am trying to say, should we not really try to help these schools that are not accredited, and then we are in effect, denying them that help by saying you cannot get it until you are accredited, or you have given us every assurance. Well, they cannot give you that assurance until they get some money. They cannot get money, because we will not do it. So, we get caught on the horns of a dilemma in some of these institutions, I think.

Miss CONLEY. May I tell you the two criteria for eligibility for reasonable assurance, sir? I quote:

> The college shall have appropriate regional accreditation or have evidence that the institution is seeking accreditation. The nursing program shall be approved by the State board of nursing.

Mr. ROGERS. Well, then, a State agency could do this. There would be no reason why they could not—this is not a very high requirement. I would think a State agency could in effect bring this about and allow funds to go in there.

Miss CONLEY. May I ask Dr. Harty to comment on this, please?

Mr. ROGERS. Yes, certainly.

Dr. HARTY. Sir, I think it would be ideal if every nursing school in the United States were given a large bloc of money if the intent were that, on a philosophical base, money in and of itself will result in excellence or will put one on the road toward excellence. The realities are that there are not enough moneys to do this, and, therefore, the element of priorities immediately enters in. In making priorities in the field of nursing, and recognizing that the purpose for these moneys is to insure that there will be a quantity type of quality, but also a quality type of quantity, it also becomes essential to make choices. When one delegates this task to the National League for Nursing, one is literally saying to the experts in the field of nursing education, give us your counsel regarding where this money would be most effective

and where the citizens of the United States would be likely to get the greatest benefits.

Mr. ROGERS. I understand the philosophy behind it and I would hope every school can be accredited. I approve of quality education wherever we can get it. The only thing I am saying is that once a school gets the accreditation, the standards are pretty well set there. So, we ought to then be looking at what we can do to bring up the standards of these schools that do not have it in order to begin to get some quality and quantity which we must have in this Nation. And, if we encourage these schools by giving support to reach standards, I think this is fine. But, in effect we are denying this right now. You say you have got to reach that basically first.

Dr. HARTY. Then, one looks at the point of reasonable assurance again. This was the mechanism established so there would be no barriers, so that it would be a simple process for a school immediately to begin to work toward the concept of excellence and to find means of doing so. When one speaks of regional accreditation for the institution, the National Commission on Accrediting specifically states that, in awarding accreditation to an institution, it does not make special decisions or determinations regarding specialized programs. Therefore, regional institutional accreditation does not, in and of itself, accredit or make a specific point of citing the excellence or the quality of a particular program. When one considers State approval, one needs to remember that the State—for the protection of its citizenry—says only that a school must have the minimal base to start. The peer group itself is identified in all fields as composed of persons who are most expert in this area. It seems logical to make it less difficult for the group to turn to its own peers for assistance. This would be again, as you so rightly put it, a philosophic base. When we look at number of nonaccredited schools, we are speaking of a very small number, since the majority of schools of nursing have moved to reasonable assurance or full accreditation.

Mr. ROGERS. Mr. Skubitz?

Mr. SKUBITZ. I have one or two questions. To become accredited, would your association determine such things as the training and the number of teachers on the faculty?

Whether a high school diploma is to be required for admittance, or 2 years of college; whether we should have a 2-year course, 3-year course or 4-year course? Are these the things that you would determine before you recommend a school?

Miss CONLEY. The organization has an established accreditation procedure. This is why, sir, we appended a little pamphlet to our testimony and asked that it be put in the record. I think, as a citizen you would be interested in that, sir, even if you were not a Congressman. There is a little blue pamphlet ("Nursing Education Accreditation," see p. 208) that you have three that gives a grat deal of information. Let me just say, however, that criteria for the evaluation of educational programs in nursing of any kind are developed by the schools themselves. I happen to have here the "Criteria for the Evaluation of Educational Programs in Nursing Leading to a Diploma." In this case the council in our organization representing the diploma schools in this country themselves developed the criteria by which they are measured. Each of these agency members, each hospital school

of nursing which belongs to NLN, has two official representatives on that council. This might be the director of the hospital and a nurse faculty member. It might be two nurse faculty members. It might be a board of trustees member and a nurse faculty member. I would hope they would always have one of the nurses on the faculty as one of their representatives.

Mr. ROGERS. Excuse me. May I interrupt just a minute? We have a call. That is the second bell. Could we—I think we had better take a recess, and if we can get permission, we will sit again at 2 o'clock, if you could join us at 2.

Miss CONLEY. I would be pleased to, sir. Thank you very much.

Mr. ROGERS. Thank you.

The committee will stand in recess until 2 o'clock.

(Whereupon, at 12:35 p.m., the hearing was recessed, to reconvene at 2 p.m., the same day.)

AFTER RECESS

(The subcommittee reconvened at 2:40 p.m., Hon. Paul G. Rogers presiding.)

Mr. ROGERS. The committee will come to order, please.

We apologize. Just about the time we were ready to start, they had another vote, so we hope we will have time now to finish.

Mr. Skubitz, I think you were questioning.

STATEMENT OF L. ANN CONLEY, ACCOMPANIED BY DR. MARGARET HARTY—Resumed

Mr. SKUBITZ. I have no more questions.

Mr. ROGERS. It is my understanding that the National Commission on Accrediting prefers an institutional accrediting position rather than a program. Is that basically true? You would not know their position?

Dr. HARTY. They do accredit institutions, sir, yes. They do not accredit programs.

Mr. ROGERS. I believe that—is there anything you might want to add? I think you were explaining to Mr. Skubitz but you have given him the answer.

Miss CONLEY. You asked me a question. I did not have an adequate answer for it. I was glad to have a little time to think.

I went back into history a little bit in my thinking. At one time I took, as many people have, a course in the history of higher education in this country. I do not remember the exact date, but I think it was during the early 1800's when we did not have in this country the development of graduate programs. At that time, if you remember, graduates of medicine used to go to Germany for postgraduate education in medicine before we had anything here in graduate education. The same was true for engineering and other professions, particularly in the science field.

At that time medical schools were in a chaotic state, and universities, particularly in Germany, were asking the U.S. Government to say whether a graduate of this medical school should be admitted because we had many very, very poor medical schools. At that time the Federal Government made the decision that it could

not go into the business of deciding quality of education, and it turned to the schools of medicine and other schools to set standards by peer groups. This was the beginning of the listing by the Federal Government of colleges and universities.

That list still comes out annually. So, if we are looking for a precedent for the Federal Government turning to professional groups that ask their peers to set standards, we can go way back to the early 1800's.

Mr. ROGERS. I was not so much concerned with precedents. I realize there is ample precedent. What I was suggesting is whether this should be reviewed, not that you would not still allow a group to set standards and try to improve your standards.

Miss CONLEY. Yes.

Mr. ROGERS. But simply not allow that group the determination as to whether Federal funds would or would not go to an institution. In other words, maybe we ought to give, as I was just saying, support money to those who have not met certain standards to bring them up to standards. This is the point I was making. I realize there are precedents.

Miss CONLEY. May I refer, however, to section 805, under the Project Grants section? There is provision there for projects to get schools of nursing ready to apply for accreditation and provide the moneys required. Project proposals could go in there for that purpose.

Mr. ROGERS. Yes. Well— and if this is so, I do not know that there is any reason why we should not give them money as long as we know they are going to do well. This is the point. And then you should not have it on a basis of some nongovernmental group deciding where the tax funds go. This is a review I want to make of the problem.

Miss CONLEY. In the Project Grants section, moneys would assist schools to get ready for accreditation, which was your concern, I believe section 805 takes care of this.

Mr. ROGERS. It perhaps could do that.

Mr. SKUBITZ. I would like to ask one question. Who accredits medical schools?

Miss CONLEY. The interesting thing, sir, is this, that no medical school or dental school could exist unless it was accredited.

This has been developmental in these two older areas of professional education in this country. If a new dental or new medical school is to start, the first thing that the institution does is to turn to the professional peer group for approval to start, rather than go first to the licensing boards in the State, as a new nursing school does.

Mr. SKUBITZ. Who accredits the medical school in Kansas or Missouri? What national organization sets up the standards?

Miss CONLEY. The American Association of Medical Colleges, sir.

Mr. SKUBITZ. Is that right?

Miss CONLEY. Yes. So you see, nursing is unique, and I propose to you that what the nurse does for and with and to the patient is as critical as what dentists or physicians do. We are a vital group for the patient and, sir, I do not have to convince you of that. You told us all about that in your own case.

Mr. ROGERS. Thank you very much. Your testimony has been most helpful.

Miss CONLEY. Thank you very much, sir.

Mr. ROGERS. Our next witness is Mr. Charles W. Bliven, executive

secretary of the American Association of Colleges of Pharmacy, and he will be accompanied by Dr. Warren E. Weaver, the president of the association.

STATEMENTS OF CHARLES W. BLIVEN, EXECUTIVE SECRETARY, AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY; AND DR. WARREN E. WEAVER, PRESIDENT

Mr. ROGERS. Welcome to the committee, gentlemen. We are pleased to have you, and we apologize for keeping you waiting so long this afternoon.

Mr. BLIVEN. We appreciate the opportunity to appear before you this afternoon, Mr. Chairman.

My name is Charles W. Bliven, and, as you have indicated, with me is Dr. Warren E. Weaver, dean of the School of Pharmacy at the Medical College of Virginia, and president of our association.

I am executive secretary of the American Association of Colleges of Pharmacy, and I present the statement in this capacity. Before assuming this office more than 6 years ago, I served for 14 years as dean of a school of pharmacy.

I appear before you in behalf of the membership of the American Association of Colleges of Pharmacy, which consists of 74 schools and colleges of pharmacy, and we have approximately 1,460 teachers engaged in instruction and some 14,100 undergraduate and 2,000 graduate students enrolled in our schools. And I might add that all of our 74 schools, members of our association, are accredited.

The curriculum leading to the undergraduate professional degree has required a minimum of 5 years since September 1960. Two of our member schools offer a required 6-year curriculum, and at least two others offer this longer program on an optional basis in addition to the minimum program. In the 5-year program at least 3 years of work in the professional subjects are required in addition to a 2-year basic science program. In the 6-year curriculum at least 4 years are mandatory beyond the 2 years of science.

The objective of the American Association of Colleges of Pharmacy is the promotion of education and research within the member institutions.

I appear before you in support of titles I and IV of H.R. 15757, the "Health Manpower Act of 1968." Title I would extend and broaden the program for the construction of teaching facilities for students in schools of pharmacy and in other health professions. It would extend the student loan and scholarship provisions to give financial aid to needy students in these professions, and authorize special project grants to all schools of the health professions. In addition it would provide institutional grants to all such schools except the schools of pharmacy and of veterinary medicine. Title IV, as you know, would extend the health research facilities program.

Public Law 88–129, the Health Professions Education Assistance Act of 1963, included schools of pharmacy in the construction program and Public Law 89–290, which amended and extended this legislation, provided scholarships and loans for students of pharmacy. However, our schools were not included (in fact we did not ask to be included at that time) in part E of the law which provides basic

improvement grants and special improvement grants for schools of medicine, dentistry, osteopathy, optometry, and podiatry. But we do wish to express our gratitude for construction funds and for financial assistance to our students made possible under these acts.

H.R. 15757 would make schools of pharmacy eligible to apply for special project grants (sec. 772) but would exclude them from receiving institutional grants (sec. 771). We ask, Mr. Chairman, that H.R. 15757 be so amended as to make schools of pharmacy eligible for institutional grants.

Manpower

Approximately 90 percent of our professional personnel are practicing in the community pharmacies throughout the country. The remaining 10 percent are engaged in the many other areas of the profession: in the pharmacies of our hospitals; in the control, research, or product development laboratories of the manufacturing plants; as medical service representatives to the physicians; in our educational programs; in Government; and in the Armed Forces. The schools of pharmacy are making every effort to respond to the demands for personnel from all of these public health areas. The educational program in pharmacy provides our graduates with an excellent background in the basic sciences as well as in the professional courses. For this reason allied health fields are utilizing an increasing number of our graduates. To provide an adequate number of pharmacists for the profession and the allied health fields, our schools and colleges of pharmacy will continue to need financial assistance through the provisions of this legislation.

In the important area of hospital pharmacy where about 10,000 pharmacists are employed, the demand is greater than the supply. Of the 7,000 hospitals only 2,339, less than one-half, have the services of a full-time pharmacist and only 2,644 (38 percent) have the services of a pharmacist on either a full-time or part-time basis. The annual replacement factor for full-time hospital pharmacists is estimated to be 12.8 percent or 621—about 17 percent of the 1967 graduating class.

The continually greater demand for pharmaceutical services by our increasing population necessitates an increased output of pharmacists. The annual increase in the number of prescriptions filled in the community and the hospital pharmacies is one factor in this increasing demand for the professional services of pharmacists. In 1967 nearly 1.1 billion prescriptions were filled—about 70 million more than in 1966.

I might mention that the increase in the number of prescriptions filled in 1967 represents a 205-percent increase over the number filled in 1947. Also in 1967 the average community pharmacy filled 21,000 prescriptions as compared to 7,000 in 1947, an increase also of 200 percent.

This increased number of prescriptions alone—that is, the 70 million—on the average requires the yearly services of about the entire graduating class of 1967. Thus, the annual increase in the number of prescriptions and the failure to graduate a sufficient number of pharmacists to meet our annual manpower replacement needs clearly indicate that all pharmacists—in our hospitals and in our community pharmacies—are having greater and greater demands made of them for professional services.

With respect to the need for pharmacists, I might add that our schools of pharmacy together with our associations are, through short courses, training community pharmacists to serve as consultants in nursing homes and small hospitals. This is a project which we have undertaken through the guidance of the Public Health Service.

Still another factor to which the attention of all of us should be directed is the increased manpower demands for pharmacists which will result from health legislation such as medicare and medicaid. I refer not only to pharmaceutical services as we currently think of them but also the other areas of health service where our graduates can and will be expected to serve.

Our member colleges have the responsibility of graduating an adequate number of pharmacists at both the undergraduate and graduate levels to meet not only the replacement needs of the profession (currently 4,300 undergraduates annually on a replacement rate of 3.5 percent per year) but also the demands of our rapidly expanding area of the health sciences. A rather constant pharmacist-to-population ratio of 67/100,000 existed from at least 1920 until about 1960; this included all licensed pharmacists not merely those in practice.

Information compiled by the U.S. Public Health Service shows that as of 1962 there were 123,057 licensed pharmacists, excluding Puerto Rico, residing in the State of registry. But this number included retired pharmacists, those who may have been seeking positions, and those who were employed outside of the profession. In relation to population there were 66.2 licensed pharmacists per 100,000 population.

However, the number of licensed pharmacists in practice in the United States as of January 1, 1962, according to the same report numbered 117,377 which on the basis of a population of 188 million provided a pharmacist to population ratio of 62.4 per 100,000.

As of January 1, 1965, the number of resident pharmacists in practice was 118,284 or 61.2 per 100,000, and I mention this because a table to which I am now going to refer is compiled on that basis.

Mr. ROGERS. Did you say 118,000?

Mr. BLIVEN. Yes, sir.

Mr. ROGERS. Thank you.

Mr. BLIVEN. Table C, which is part of this report, gives information on the average annual number of pharmacists and requirements for replacements, new entrants, and the total need for pharmacists in practice in the United States for 5-year periods during 1965–80 in order to maintain the 1965 ratio of 61.2: 100,000 population. For the period 1965–70, an average of 5,900 replacements and new entrants will be needed. This number is 57.6 percent greater than the 3,744 graduates in 1967. To further emphasize our manpower problem, on the basis of the estimated number of graduates in the years ahead, this output of 5,900 may not be reached until 1976 (see table D) at which time our average annual need for graduates will be about 7,400 to maintain the 1965 ratio of practicing pharmacists to population of 61.2 per 100,000. Thus, on this basis the pharmacist to population ratio will continue to show a gradual decrease.

Facilities

This emphasizes the need for continued expansion of existing schools and the possible need for new schools. In earlier statements before this

committee it was stated: "* * * the needs of schools of pharmacy appear to be the replacement or rehabilitation of existing structures and the expansion of some to meet area needs. There does not appear to be a need for the establishment of new schools." Now that we have data on the 5-year program, which was initiated in 1960 and produced the first graduates in 1965, the need for some new schools or at least a more rapid expansion than at present of existing schools appears essential if the pharmacist to population ratio is to be maintained at the 1965 level. It should be mentioned that the Fordham University College of Pharmacy, a private institution, will cease to take students into the professional program after 1969.

In a survey conducted in December 1967, 12 schools of pharmacy reported projects approved and funded during fiscal year 1963–67 with the Federal share amounting to $9.1 million (total cost of $26.9 million). Two projects were renovations, the remaining 10 schools reported an increase of 367 first-year places. Six additional schools indicated construction is planned during fiscal year 1968 and 1969 with five schools reporting the total Federal share at $5.1 million (total cost at $8.8 million). The increase in first-year places is estimated to be 116.

During the 3-year period fiscal year 1970–72, 21 schools indicated they plan construction projects. The total estimated Federal share—14 schools—is $18.2 million and the estimated total cost of construction—18 schools—is $40.2 million. The estimated number of new places is 454. Fifteen schools stated they plan construction beyond June 30, 1972.

The provision of H.R. 15757 which would permit schools to submit one application for multipurpose facilities is a most desirable change. With the necessary increase in attention being devoted to continuing education, and to graduate training, the inclusion of facilities for such purposes in the construction program would permit a greater coordination in planning and the development of a more complete and interdigitated program.

Student aid

As stated previously, we did not seek in 1965 inclusion in the basic improvement grants and the special improvement grants provisions of the legislation. Instead we sought, and Congress did include, students of pharmacy in the loan and scholarship portions of the bill. For this we are grateful, and we believe that it is an important factor in our increasing enrollments in entering classes; i.e., the third year of the 5-year program. In 1966 about 13 percent more students enrolled than in 1965, and last year the increase was almost 6 percent over that for 1966.

According to information provided by the Bureau of Health Manpower, scholarship funds in the amount of $1,003,200 were allocated to schools of pharmacy in fiscal year 1967. Of the eligible class of 5,134 students, 1,051—20.5 percent—of our students received grants. The average grant was for $648 and 67.9 percent of the funds allocated were used. In addition to these Federal scholarship funds, our schools used almost 100 percent of the scholarship funds available to them from other sources.

A survey conducted in January 1968, by the American Association of

Colleges of Pharmacy on the use of scholarship funds allocated for fiscal year 1968, showed the following:

(1) Of the 73 schools receiving funds, 69 reported allocations totaling $1,812,103;

(2) Grants totaling $1,322,309 were made to 2,104 students for an average loan of $628;

(3) About 74 percent of the allocated funds were used as of December 1968.

With respect to loan funds, the Bureau of Health Manpower reported that of 73 eligible schools in fiscal year 1967, 45 received funds—a majority of the remaining schools continued to use NDEA funds—totaling $1,638,887 and that loans averaging $700 were made to 1,584 students. Thus 67.7 percent of the funds were used.

Again, a survey conducted in January 1968 by the American Association of Colleges of Pharmacy revealed that 48 schools received loan funds for fiscal year 1968 totaling $1,887,740; loans totaling $1,416,271 were made to 1,935 students for an average loan of $732; and that 75 percent of the funds had been used as of December 1967.

These figures, I believe, indicate the need for student financial assistance in schools of pharmacy.

The estimated need for loan funds for fiscal year 1969 through 1972 was ascertained and, for the 45 schools reporting, the need is as follows:

1969	$2,242,270
1970	2,489,395
1971	2,720,500
1972	2,952,460
Total	10,404,625

The provisions of H.R. 15757 which permit, with the permission of the Secretary, the transfer of up to 20 percent of the money from the scholarship fund to the loan fund and vice versa is a very desirable feature. Too, the change in the definition of those eligible for scholarships is most helpful. While in a survey conducted in January 1968, only about 10 percent of the deans of pharmacy indicated some change in the basic law was considered desirable, the most frequent comment was in regard to the limitation placed on the use of the funds because of the current wording; in fact, two schools failed to make any scholarship grants because of the university's interpretation of "* * * students of low-income families who without such assistance would be unable to pursue the course of study * * *."

Institutional grants and special project grants

As noted earlier in this statement, the American Association of Colleges of Pharmacy requests that schools of pharmacy be included among the health schools eligible for institutional grants. At the present time our schools have no broad Federal financial assistance program available. Our schools are eligible for support through the general research support program administered by the National Institutes of Health; but the fact is that, while schools of medicine and dentistry automatically receive the basic grant of $25,000 annually plus additional funds calculated on research expenditures, schools of pharmacy are required to have grants totaling $100,000 during 1 year from the Public Health Service in order to be eligible for the

basic grant of $25,000. About seven of our 74 schools have qualified for the general research support grants at one time or another, but only four or five have qualified in any one year.

One of our needs now is for grants which can be used by the schools to strengthen their total programs, the undergraduate as well as the advanced programs. As in other health profession schools, a graduate program in the pharmaceutical sciences is essential in obtaining and retaining staff, in strengthening the undergraduate program, and in contributing new knowledge in our special area of the health sciences.

In a report made in January 1968, the American Council on Pharmaceutical Education, the accrediting body for schools of pharmacy, made the following statement:

> While the Council is under . . . rather diffuse pressures shared by others in the accrediting field, it is also under the more immediate pressures of the crisis in higher education as it affects pharmaceutical education. No one can read the newspapers today without being aware of the seriousness of this crisis which is largely a money crisis caused by inadequate funding on the one hand and inflationary pressures on the other.
>
> These are difficult problems to understand in pharmaceutical education for there are surface manifestations that all is well. Direct pharmacy budgets are up some 16 percent this year—this refers to the year 1967–68—for example, new buildings for pharmacy were erected during the year and others are under construction (since World War II, 27 new free-standing buildings and 20 shared buildings have been erected for pharmacy), the size of the full-time faculty has inched up to a new record number, the faculty published several hundred research papers and books and were granted 16 U.S. patents during the past academic year. But underneath this rosy facade, there are several evidences of problems growing more acute.
>
> Private institutions have raised tuition nearly to the limit of the marketplace and several have had to be taken over by the State. State legislatures are hard pressed for sources of support almost universally and some States are extremely malnourished.

While the past 2-year percentage gain in legislative support for higher education in the Nation is 44 percent, one State with a college of pharmacy showed only a 6.5-percent gain and another only 12 percent. While the national 8-year gain in legislative support for 1968 over 1960 was 214 percent, one State gained only 73.5 percent. The recent direct pharmacy college budget increases have gone almost entirely into salaries. This means that some faculties do not have adequate supplies, equipment, libraries, and travel funds with which to work effectively. While industrial support for research appears to have increased last year, Federal support for research was diminished by nearly $1 million. The American Association of Colleges of Pharmacy most recent survey shows that the number of unfilled faculty positions in pharmacy has increased since 1963 from 81 to 124. Seven colleges of pharmacy are looking for new deans currently, and there will be other additional retirements next year without doubt. The revolution in the health professions precipitated by medicare calls for a fresh approach to curriculum planning that has now begun, but still has a long way to travel.

In addition, I wish to note that only recently—January 1968—the American Association of State Colleges and Universities and the National Association of State Universities and Land-Grant Colleges in a joint statement commented on education in health-related fields stating in part:

> We urge corrective legislation to end this discrimination to major health-related fields, especially as concerns basic and special improvement grants for

support of the instructional function at schools of pharmacy and veterinary science.

The American Association of Colleges of Pharmacy is in the process of studying program costs in schools of pharmacy. This is one part of a project designed to further delineate the needs of our schools, and is considered as an essential first step in strengthening our programs in pharmacy. To date, figures from 29 schools are available, 24 State schools and five non-State schools. The study covers the academic year 1965–66.

The average total expenditure for all schools was $443,733, and the range was from $124,963 to $1,554,390. Net cost—or gain—information is available on 27 of the 29 schools. Twenty-four of the 27 schools showed deficits; the average deficit was $327,705, with a range of $63,178 to $1,192,211, and a median of $281,544.

The average cost of the undergraduate program per undergraduate student for all schools was $1,300 with a range of $631 to $2,294, and a median of $1,516. The average cost per graduate student—20 colleges reporting—was $2,272, with a range from $1,158 to $14,883, and a median of $2,799.

Lastly, the cost per undergraduate student on the basis of total expenditures of the 29 schools was $1,988.

On the basis of the formula given in H.R. 15757, it is not possible to determine the institutional grant funds needs for schools of pharmacy. However, using the formula for the current basic improvement grants provision and the estimated enrollments given in table D, the need would be $9.9 million in fiscal year 1970. Based on the average estimated enrollment for fiscal year 1970–73, the need would be about $10.7 million per year for the 4-year period, or about $146,000 per school per year.

As you are well aware, under H.R. 15757, schools of pharmacy would not be eligible for participation until fiscal year 1970. Thus, our request for inclusion in the institutional grant provision may be viewed as a request for "legislation for the future;" it would not affect the 1969 budget. We ask your serious consideration of our needs. But please be assured that we in pharmacy are mindful of the many demands of the current period and that priorities must be given consideration. However, we are hopeful that the urgencies now with us will have lessened by fiscal year 1970.

Certainly, we would be remiss if we failed to acknowledge with appreciation the inclusion of our schools in the special project grants provisions of the bill. These will be helpful, in view of the several purposes for which they can be used but, as stated earlier, our schools have no source of broad Federal financial assistance such as the institutional grants with which to meet the exigencies which arise and which could not be met immediately by a project grant.

Research facilities

Title IV would extend the research facilities construction program for 4 years through fiscal 1973, authorizing "such sums as may be necessary." The AACP supports this extension and hopes that the funds available in the years ahead for this essential program will more nearly meet the demands than do funds currently available and those expected during 1969.

Summary

In summary, the American Association of Colleges of Pharmacy supports titles I and IV of the Health Manpower Act of 1968, but asks that title I be amended to include schools of pharmacy in the institutional grants program section 771. This broad source of support, as well as the funds available through the other provisions of titles I and IV, are essential to the continued development of the total programs of our schools to the end that adequate pharmacy manpower may be available to meet the needs of the public.

(The tables referred to above follow:)

TABLE A.—UNDERGRADUATE ENROLLMENT IN CONTINENTAL U.S. SCHOOLS OF PHARMACY, 1964–67

Year	Last year	2d from last year	3d from last year	Total
1964–65	3,557	3,977	4,427	11,961
1965–66	3,770	3,990	4,583	12,343
1966–67	3,871	4,024	5,173	13,068
1967–68	4,085	4,476	5,561	14,122

TABLE B.—*Graduates from undergraduate curriculums of continental U.S. schools of pharmacy, 1958–67*

Year:	*Graduates*
1958	3,683
1959	3,686
1960	3,497
1961	3,438
1962	3,699
1963	4,163
1964	[1] 2,195
1965	3,360
1966	3,659
1967	3,744

[1] The small number of graduates in 1964 was the result of the transition from the 4- to the 5-year program in 1960 by those schools not already on the longer program.

TABLE C.—AVERAGE ANNUAL NUMBER OF PHARMACISTS, AND REQUIREMENTS FOR REPLACEMENTS, NEW ENTRANTS, AND TOTAL NEED FOR PHARMACISTS IN THE UNITED STATES FOR 5-YEAR PERIODS, 1965–80 [1]

Period	Average annual number of pharmacists [2]	Requirements		Total
		Replacements [3]	New entrants	
1965–70	120,000	4,200	1,700	5,900
1970–75	128,700	4,500	1,800	6,300
1975–80	138,700	4,800	2,600	7,400

[1] Puerto Rico is not included.
[2] Based on Bureau of Census population projection of February 1967, series B, on the population increase as being linear, and on 1965 pharmacist-to-population ratio of 61.2:100,000.
[3] Calculated at 3.5 percent of number of pharmacists.

TABLE D.—ENROLLMENT BY CLASSES IN SCHOOLS OF PHARMACY FOR 1967–68 AND ESTIMATED ENROLLMENTS AND NUMBER OF GRADUATES FOR YEARS 1968–69 TO 1975–76

Year	3d last year [1]	2d last year [2]	Last year [3]	Estimated total enrollment [4]	Estimated number of graduates
1967–68 [5]	5,561	4,476	4,085	14,122	3,936
1968–69	5,900	4,960	4,337	15,197	4,168
1969–70	6,260	5,263	4,806	16,329	4,619
1970–71	6,642	5,584	5,100	17,326	4,901
1971–72	7,000	5,925	5,411	18,336	5,200
1972–73 [6]	7,080	6,244	5,741	19,065	5,517
1973–74	7,160	6,315	6,050	19,525	5,814
1974–75	7,240	6,387	6,119	19,746	5,880
1975–76	7,320	6,458	6,189	19,967	5,984

[1] Enrollment increase based on 6.1 percent, the average increase for years 1963–67.
[2] Enrollment decrease from preceding class based on 10.8 percent, the average decrease for years 1962–66.
[3] Enrollment decrease from preceding class based on 3.1 percent, the average decrease for years 1962–65.
[4] Attrition rate from last year based on 3.9 percent, the average rate for years 1962–64.
[5] Actual enrollment.
[6] Assumes construction will continue beyond fiscal year 1972 at same average rate and new places will be available at same average rate per year as for the period fiscal year 1964–69 (483 places divided by 6 years equals 80 places per year).

Mr. BLIVEN. Mr. Chairman, I think President Weaver has a very brief statement, and after that we shall be happy to attempt to answer any questions you may have.

Mr. ROGERS. Fine. We will be glad to hear you, Dr. Weaver.

Mr. WEAVER. Thank you, Mr. Chairman.

My name is Warren Weaver, and I am dean of the school of pharmacy at the Medical College of Virginia in Richmond, Va., from the third district represented by Mr. David Satterfield.

I appear on behalf of the membership of the association and my colleagues in pharmaceutical education. We, in pharmacy education are, of course, most interested in titles I and IV of H.R. 15757. We are most grateful for the support provided pharmaceutical education in the past and as proposed in this legislation. Our greatest concern is that schools of pharmacy are not included in section 771 and we request amendment so that schools of pharmacy are eligible for institutional grants.

Dr. Bliven, in his statement, has given you a great deal of detailed information about pharmacy and the schools of pharmacy in this country. I would wish to emphasize that we in pharmacy education are directing great effort toward change in our curriculum and modification of our offerings so that the graduate in pharmacy can take an even more meaningful role in the health care team.

All of us are interested in the highest quality of health care that can be delivered to the citizens whom we serve.

Pharmacy has assumed a significant role in this respect to the past and wishes to keep abreast of the other health professions in the future.

We in pharmacy are firmly committed to a program of patient oriented education. Our ability to carry forth this commitment is directly related to our ability to obtain additional support. As we see it, all elements of the health care team must move forward together if the goal of high quality medical care for all citizens is to be realized. It is not my purpose to belabor you with the details of pharmaceutical

education or the progress we have made, much of it with your help during the past. I think Dr. Bliven's statement outlined our present situation, and, as he indicated, we would be most pleased to answer any questions you might put to us.

Thank you for the opportunity.

Mr. ROGERS. Thank you, we appreciate your being here. I would like to have for the record—and I am sure you will not have it now—how many additional students your schools of pharmacy could probably handle with the grant, and so forth, what it would take to get how many in, and so forth.

Mr. BLIVEN. Are we talking about capacity of our existing facilities?

Mr. ROGERS. Yes.

Mr. BLIVEN. The best figures we have, Mr. Chairman, at the present time would be 6,330 as of September this year, and as of September 1973, I believe, our estimated capacity on the basis of the assistance we have been receiving, and if that is projected at the same rate, would be about 6,840 students. So that we are beginning—our concern now begins to be capacity within existing schools and this is a reason——

Mr. ROGERS. This is what I would like to know, if you could give us some idea on what your present capacity is, whether it would be possible, you think, and feasible to make a requirement that they take an additional 10 percent of the student body if they get funds from the Federal Government, and so forth.

Mr. BLIVEN. Our beginning enrollment in 1966 was 13 percent higher than it was for the same class for 1965.

Mr. ROGERS. I see.

Mr. BLIVEN. And our increase for September 1967 as compared with 1966 was an additional 6 percent. So that our enrollments on the entering classes, at least, have been proceeding rather satisfactorily, we think, but we need to run——

Mr. ROGERS. Is it sufficient to meet the need? Do we need more colleges?

Mr. BLIVEN. We are beginning to think that we may need additional colleges.

Mr. ROGERS. We would like to know what your projection is and what you think you will need.

Mr. BLIVEN. We will try to provide that for you, sir.

Mr. ROGERS. Thank you.

(The information requested follows:)

RESPONSE OF CHARLES W. BLIVEN, EXECUTIVE SECRETARY, AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY TO QUESTIONS SUBMITTED BY REPRESENTATIVE PAUL G. ROGERS

1. What is the present student capacity of schools of pharmacy? How many additional students could schools of pharmacy take?

For the term beginning September, 1968, the estimated enrollment of first-year students is 5,900 and 6,330 places are expected to be available. However, beginning with September, 1970, it is expected that the enrollment of first-year students may exceed slightly the number of places available for that class. Accordingly, in each succeeding year it is expected that the enrollment of the schools of pharmacy will be determined by the number of places available for the first-year class and the willingness of students to attend schools with spaces available. The number of first-year places available is expected to be 6,550 by September, 1970, to remain at 6,550 for September, 1971, to increase to 6,610 for September, 1972, and to 6,840 by September, 1973. However, the number of first-year spaces available in each of these years is less than the number required to

produce the number of graduates needed to maintain the 1965 pharmacist to population ratio of 61.2 per 100,000.

The table given below projects the capacity, the enrollment, and the number of additional students which can be accommodated as of September, 1970. It will be noted that the first-year enrollment will be at least equal to the expected capacity, but smaller entering classes in previous years and attrition will cause the second-year and third-year classes to be slightly under capacity—a condition which will occur for only a short time after 1970.

A study is currently underway to update the capacity figures and the projected enrollment figures to our schools. This information is not expected to be available until the middle of 1969, however.

CAPACITY, ENROLLMENTS, AND ADDITIONAL STUDENTS WHICH CAN BE ACCOMMODATED BY SCHOOLS OF PHARMACY, SEPTEMBER 1970

	Capacity	Enrollment	Additional students
1st year [1]	6,550	[2] 6,550	0
2d year	5,840	5,584	256
3d year	5,660	5,100	560
Total	18,050	17,234	816

[1] The 1st year refers to the 3d year of the 5-year program. The number of places available to this class and attrition determines the number of students in the remaining classes, although the number of places actually available may be somewhat greater.

[2] Based on the average annual increase for the years 1963–67 (6.1 percent) the number of students may exceed this figure by 92 students. (See table D of prepared statement.)

2. Give the Committee a projection of your needs. Do we need additional schools of pharmacy?

The table given below depicts the projected needs of schools of pharmacy to provide the number of graduates necessary to maintain the pharmacist to population ratio at the 1965 level of 61.2 per 100,000. Thus, as of September 1970, 7,398 first-year places will be needed, 848 more than the 6,550 expected to be available.

By September 1973, there will be a need for 1,136 new first-year places beyond the 6,550 such places available in September 1970. But the net increase in the number of new places between 1971 and 1973 is expected to be only 290, leaving a deficit of 846 places. Another 96 new places will be needed by September 1974, but construction plans for the period 1973–1974 are unknown.

Since schools of pharmacy became eligible for construction funds in 1963, new spaces have been added at the rate of about 80 per year, a rate too low to catch up with the manpower deficit and to meet the annual needs.

As mentioned in my prepared statement: "——the need for some new schools or at least a more rapid expansion than at present of existing schools appears essential if the pharmacist to population ratio is to be maintained at the 1965 level." In view of the deficit of new places (848 by 1970) and the need for about 100 new places annually, it would appear to be unwise to expect the expansion of existing schools to meet the total need; therefore, some new schools of pharmacy are deemed essential.

PROJECTION OF 1ST-YEAR UNDERGRADUATE STUDENT PLACES REQUIRED BY SCHOOLS OF PHARMACY ANNUALLY FOR THE PERIOD 1970–75, AND THE NUMBER OF NEW PLACES REQUIRED, BASED ON SEPTEMBER 1970 CAPACITY, TO PRODUCE THE NUMBER OF GRADUATES NEEDED FOR THE 5-YEAR PERIOD

Year	1st-year places	New places [1]	Graduates [2]
1970–71	7,398	848	6,140
1971–72	7,494	944	6,220
1972–73	7,590	1,040	6,300
1973–74	7,686	1,136	6,380
1974–75	7,782	1,232	6,460
Total	37,950		31,500

[1] New places required above the September 1970 capacity of 6,550 places.

[2] The graduates needed is based on a linear projection of data given in table C of the prepared statement.

3. Would it be desirable and feasible to require schools of pharmacy to take an additional 10 percent of the student body, if they get funds from the Federal government?

Those schools receiving funds for construction under existing legislation must, in the case of minimum expansion, increase the first-year enrollment by a 5 percent or 5 students, whichever is greater. In the case of major expansion, the first-year enrollment must be increased by 20 percent or 20 students, whichever is greater.

To obtain the basic improvement grants under existing legislation or in the case of the institutional grants program of H.R. 15757, first-year enrollment must be increased by at least 2½ percent or by five students, whichever is greater.

The enrollment increases required in the construction program seems entirely appropriate since increased capacity can be incorporated in the construction plans.

The incentive to increase enrollments as provided in the institutional grants program (Section 771 (a)(1)(A)(ii)) should prove helpful in increasing the output of health personnel. The requirement of an increase of 2½ percent or five students (Section 771 (b)(1)) is reasonable for most of our schools. But this requirement annually may prove unwise in some schools where capacity enrollments exist or where the quality of the educational program would be weakened. However, in such cases this requirement can be waived by the Secretary.

In September, 1967, about one-half of our schools had an increase in first-year students of 5 percent or more over the previous year. In some instances it is likely that there was a lack of qualified applicants to increase the number of first-year enrollees, and in other instances, the class may have been at capacity. Since the availability of institutional grant funds would enable schools to seek additional qualified students, it would seem imprudent to withhold grant funds solely on the basis of the inability of a school to meet the increased enrollment criterion. As stated above, the incentive provision contained in Section 771 (a)(1)(A)(ii) should serve as a stimulus to increase student enrollment and could possibly preclude the need for the requirement for increasing the first-year enrollment as contained in Section 772 (b)(1).

Mr. ROGERS. Mr. Skubitz?

Mr. SKUBITZ. Mr. Bliven, are you a pharmacist?

Mr. BLIVEN. Yes, sir.

Mr. SKUBITZ. When did you graduate?

Mr. BLIVEN. Oh, I wish you had not mentioned that. In the State of Nebraska, in 1934.

Mr. SKUBITZ. How many years did you attend college?

Mr. BLIVEN. I went to school 4 years.

Mr. SKUBITZ. Now 6 years are required; is that correct?

Mr. BLIVEN. 5 years is mandatory. Two schools in California require 6 years.

Mr. SKUBITZ. Why is it necessary to go 6 years to become a pharmacist?

Mr. BLIVEN. Some of our 6-year programs—and this is true, I think, for the programs that are adding 1 year to the 5-year program—is for purposes of specialization in such areas as hospital pharmacy, medical, service representatives, and perhaps Dean Weaver——

Mr. SKUBITZ. Specialization.

Mr. BLIVEN. Yes. Specialization. Now, this is not necessarily true of the two California schools. They have increased considerably the amount of basic biological sciences, for example, in their curriculum, and I would add that some of——

Mr. SKUBITZ. Is that necessary?

Mr. BLIVEN. Yes, I think it is.

Mr. SKUBITZ. I am fearful that no matter how much money we give, the result would be raised standards and less pharmacists.

Mr. ROGERS. If they are going to fill those prescriptions right.

Mr. WEAVER. I would say it is not a question of raising standards but a question of sophistication of delivery of health aid today.

Mr. ROGERS. All the new drugs, et cetera.

Mr. SKUBITZ. We have two pharmacists in our family and three doctors, so I have talked to them quite often about it.

Mr. WEAVER. One of our big problems is to give continuing education for fellows like myself who graduated back 30 years ago and need to be kept abreast of current developments.

Mr. SKUBITZ. That is all, Mr. Chairman.

Mr. ROGERS. Thank you very much. Your testimony is most helpful.

Our next witness—I believe we have three from the American Veterinary Medical Association. Dr. W. R. Pritchard, who is dean of the School of Veterinary Medicine, University of California.

Dr. Pritchard, pleased to have you.

Dr. W. T. S. Thorp, dean of the College of Veterinary Medicine, University of Minnesota. And Dr. Erskine V. Morse, dean, School of Veterinary Science and Medicine, Purdue.

It is a pleasure to have you gentlemen with us, and we appreciate your coming and being patient with the committee. If you would like to file statements for the record, they will be received and printed in full, and if you will just give us copies, I think we can get to the points quicker.

STATEMENT OF DR. W. T. S. THORP, CHAIRMAN, JOINT COMMITTEE ON EDUCATION, AMERICAN VETERINARY MEDICAL ASSOCIATION

Dr. THORP. I have a statement, and I have submitted it.

I am Dr. W. T. S. Thorp. I am representing the American Veterinary Medical Association as chairman of their joint committee on education. As you said, I am also dean of the college, University of Minnesota.

The American Veterinary Medical Association strongly supports the passage of H.R. 15757 as introduced by Congressman Staggers and entitled "The Health Manpower Act of 1968." In supporting this act, though, we urge the committee to amend the bill to include veterinary medical colleges under the provisions authorizing institutional grants. It is my understanding that this morning the Senate Committee on Health and Welfare reported out S. 3095 and did include veterinary medicine in the institutional grants.

Mr. ROGERS. Did you appear before the Senate committee?

Dr. THORP. Yes, I did.

Mr. ROGERS. You must have been persuasive.

Dr. THORP. Mr. Chairman, at this point I would like to submit for inclusion in the record of these hearings a prepared statement of the American Veterinary Medical Association and the statements of Dr. Price, the dean at Texas, Dr. M. R. Clarkson, Dr. John McKibben's discussion of veterinary education, Dr. Booth, the dean at Colorado, Dr. Armistead's statement, the dean of Michigan State, Dr. Mark Allam, the dean at the University of Pennsylvania, Dr. T. S. Williams, dean at Tuskegee, and Dr. James A. Greene, dean at Auburn, and Dr. Kingrey, the dean of Missouri.

Mr. ROGERS. Do you have any statements.

Dr. THORP. Yes, they have been submitted to the staff.

Mr. ROGERS. How large are they? Your official statements—

Dr. THORP. The official statement is here in detail.

Mr. ROGERS. We will put that in the record.

Dr. THORP. It was our hope to put the others in the record.

Mr. ROGERS. We will either put them in the record or keep them for our official files.

Dr. THORP. They are short statements. Some of them are essentially like a two-page letter.

Mr. ROGERS. That will be fine, then. Without objection it will be so ordered.

(Dr. Thorp's prepared statement and additional statements referred to, follow:)

STATEMENT OF W. T. S. THORP, D.V.M., CHAIRMAN, JOINT COMMITTEE ON EDUCATION, AMERICAN VETERINARY MEDICAL ASSOCIATION

I. FUTURE REQUIREMENTS FOR VETERINARIANS

The American Veterinary Medical Association estimates that there are today approximately 26,000 veterinarians in the United States. This represents a ratio of 13 veterinarians per 100,000 population. However, in 1961 the Senate Committee on Government Operations estimated that to adequately serve the health needs of the United States, a minimum of 17.5 veterinarians per 100,000 population would be needed by 1980.* This would mean 44,100 veterinarians for a population estimated by the U.S. Bureau of the Census to reach 252 million by 1980.

Although American colleges of veterinary medicine at present are graduating approximately 1,000 veterinarians per year, in the next 12 years approximately 600 veterinarians per year will be lost to the profession due to death or retirement. Consequently unless student enrollment in veterinary colleges increases substantially, only about 31,000 veterinarians will be available in the United States in 1980—more than 13,000 short of the estimated need.

In order to implement the total needed expansion of veterinary education, additional colleges must be established, existing colleges remodeled and expanded, the training of veterinary teachers must be accelerated, new teaching staff must be added and instructional and research programs adequately funded, and additional loan funds and scholarships made available to academically qualified students from lower income families.

To earn his Doctor of Veterinary Medicine degree, a student must complete a minimum of 2 years of pre-veterinary college training in a college of veterinary medicine. The average graduate veterinarian, however, has studied more than 7 years to earn his D.V.M. degree.

In the public interest, passage of the Medical Manpower Act of 1968 is urgently needed. Its enactment would enable the veterinary profession to provide:

A. NECESSARY BUILDING TO INCREASE ENROLLMENT IN EXISTING VETERINARY MEDICAL COLLEGES

In 1967 at least 3 qualified applicants were turned away for each one accepted in American veterinary colleges. The limited capacity of our veterinary colleges is especially distressing at a time which is suffering from an acute and growing shortage of veterinarians. Lack of funds for the construction of new buildings and building additions poses the principal obstacle to increasing student enrollment at most colleges.

*"Veterinary Medical Science and Human Health," Committee on Government Operations, United States Senate and its Subcommittee on Reorganization and International Organizations, August 10, 1961.

B. STABLE, LONG-RANGE FUNDING FOR RESEARCH, INSTRUCTIONAL PROGRAMS, AND EFFICIENT ADMINISTRATION

The heavy emphasis in our society on research and public health exerts a substantial influence on veterinary medical education. It requires additional faculty competent to teach highly specialized subjects; the acquisition and operation of modern sophisticated teaching aids; the development and long-range funding of research-oriented instructional programs; the establishment of multiple-service laboratories; multiplication of seminars and self-learning courses of all kinds, and the expansion of personnel to coordinate and administer these programs.

C. ESTABLISHMENT OF NEW VETERINARY COLLEGES

There are 18 colleges of veterinary medicine in the United States. Even with expansion, these colleges will be unable to supply all the veterinarians needed in the years ahead. Moreover, many qualified students from the 33 states lacking a veterinary college find it impossible to obtain a veterinary education. In recent years, several states have considered establishing new veterinary colleges but have postponed action because of the high cost of construction, maintenance, staffing and operating a college of veterinary medicine.

D. LOANS AND SCHOLARSHIPS TO VETERINARY MEDICAL STUDENTS TO FINANCE THEIR EDUCATION

A survey of deans of American veterinary colleges reveals that (1) many students are unable to achieve and acceptable level of scholastic performance in their professional studies because of the necessity to work excessively long hours at part-time jobs to support themselves, (2) many students who would prefer to be veterinarians elect other degree programs because of their inability to finance 6 or more years of veterinary education.

II. Justification for Federal Support

Veterinarians for the 50 United States are supplied by 18 veterinary colleges in 17 states. Consequently, they are national resources in the fullest sense. It is eminently logical, therefore, that federal support be extended to these colleges.

Because of the high cost, it is unlikely that each state can support a college of veterinary medicine on its own. Therefore, each veterinary school will continue to enroll students from states having no veterinary college.

For the foreseeable future, existing colleges probably could supply the needs of their own 17 states with state funds. But it is unreasonable to expect these states to finance the total expansion of veterinary medical educational facilities that is required nationally to meet the growing need for veterinarians.

In some parts of the United States, those states without veterinary medical colleges have entered into agreements with schools in nearby states. However, even where a contract exists, the percentage of applicants admitted from contract states is much smaller than that from the state in which the school is located. Obviously, equal educational opportunity does not exist for aspiring veterinary medical students throughout the United States. Passage of the Medical Manpower Act of 1968 would do much toward providing equal educational opportunity for all students who wish to study veterinary medicine.

Modern veterinary medicine has achieved a high level of scientific sophistication and performance. Its contributions to human health and welfare establish veterinary education as a precious national resource which must be supported and promoted in the national interest.

III. The Services of Veterinary Medicine to Society

1. ANIMAL HEALTH PROTECTION

Farm Animals

Approximately 10,000 veterinarians care for the nation's farm animals. These practicing veterinarians protect the health of farm animals supplying protein food vital to healthy human nutrition. The demand for protein food is increasing and will continue to increase in order to meet the needs of a rapidly increasing population.

The veterinary practitioner also cooperates with state and federal veterinarians in the eradication or control of major livestock diseases many of which, such as

tuberculosis and brucellosis, are communicable to man. Veterinary service and counsel on animal health problems is supplied mainly by the farm animal practitioner.

Veterinarians are currently responsible for the health of 108.5 million cattle, 51 million hogs, 24 million sheep, 435 million poultry, and 31 million horses. The combined inventory and production value of the Nation's livestock was 41 billion dollars as of January 1, 1967 (U.S.D.A. estimate).

Pets and Recreational Animals

The veterinarian who concerns himself with the diseases of pets and pleasure animals enhances the emotional well-being of their owners. Moreover, he protects man against diseases transmissible from pet animals, such as rabies, leptospirosis, bacterial diarrhea, ringworm, staphylococcosis, and psittacosis. The steadily increasing number of pet animals attests to their popularity and to the pleasure they provide. The maintenance of their health is a vital part of the profession's contribution to society.

2. GOVERNMENT SERVICE

U.S. Department of Agriculture

Veterinarians are necessary to carry out many functions of state and federal government agencies in the United States. Veterinarians have been engaged in the eradication of livestock diseases including those communicable to man, since 1884 when the Bureau of Animal Industry became a part of the United States Department of Agriculture.

Two diseases of particular public health significance, both of which are targets of a joint eradication effort by U.S.D.A. and the individual states, are tuberculosis and brucellosis in cattle. Brucellosis in swine is another eradication target, because it is a major source of human brucellosis. Successful elimination of brucellosis in cattle and swine will not only largely remove the major sources of human illness, but will also reduce losses of animals through abortions caused by the disease.

Veterinarians working either as members of federal and state government agencies, or as private practitioners, have been responsible for reducing losses to farmers from brucellosis from $90 million in 1947 to $12.5 million in 1967. As a result, reported cases of human brucellosis have dropped by 94 percent since 1947.

In 1917, tubercolsis affected 1 out of 20 cattle; the disease affected only 1 in 3,000 in 1967. The death rate for tuberculosis in man in 1917 was 125 per 100,000. In 1965, it was 4.1 per 100,000. Although the reduction of tuberculosis in cattle is not solely responsible for the decline of the disease in man, it has played a major role. The joint efforts of government veterinarians and veterinary practitioners have been responsible for the near elimination of human extrapulmonary and pulmonary tuberculosis of bovine origin from most of North America.

The goal is to eradicate these two diseases completely in animals because until this is accomplished, people will continue to be victims of these diseases through contact with infected animals.

Food Hygiene

Veterinarians direct meat and poultry inspection programs for federal, state and local governments. This country enjoys the highest per capita consumption of meat and poultry in the world; approximately 200 pounds of meat are consumed by the average person each year.

In response to the nationwide demand for consumer protection, Congress passed the Wholesome Meat Act in 1967 (Public Law 90–201) and Congress is now considering bills pertaining to inspection of poultry and poultry meat products. The above legislation requires hundreds of veterinarians to implement the new program.

Veterinarians participate in food hygiene research and advise and assist in the development and maintenance of recommended ordinances regarding milk sanitation, poultry inspection, and sanitation of food service establishments. Animal diseases are of public health significance because some are transmissible to man through milk, meat, poultry and other animal food products. Food products may also serve as vehicles of human infections, namely, typhoid fever, diphtheria, scarlet fever, and streptococcal infections.

In fiscal year 1966, 104,988,350 animals were slaughtered under Federal Meat Inspection. Veterinarians direct all slaughtering and administer the over-all meat inspection program, as well as the humane slaughter law, which requires that animals be rendered insensible before slaughter begins. During 1966, over 264,992 animals at slaughter were condemned by veterinarians as unfit for human consumption. In addition, over 9,765,514 animal carcasses were temporarily retained until diseased or affected portions were removed. (Federal Meat Inspection. A Statistical Summary for 1966. United States Department of Agriculture, Consumer and Marketing Service, February 1967, pages 2–12.)

Department of Health, Education, and Welfare—U.S. Public Health Service

In 1943 the U.S. Public Health Service organized a veterinary medical program and in 1947 established the veterinary officers' corps. Members presently occupy key positions in a variety of programs throughout the Service. Veterinarians are today employed by the Service in the fields of milk and food sanitation, laboratory animal medicine, comparative pathology and physiology, industrial health, epidemiology, infectious diseases, air pollution, radiological health, cancer and cardiovascular and kidney disease research.

Food and Drug Administration

Veterinarians in the Bureau of Veterinary Medicine of the Food and Drug Administration are concerned with the protection of human health. They develop scientific methods for detecting worthless or harmful drugs and assure that foods, drugs, and cosmetics are wholesome, safe to use, made under sanitary conditions, and truthfully labeled. They determine the safety or danger of additives (such as antibiotics and other growth stimulating drugs) in feed consumed by food-producing animals to insure that meat, milk, or eggs are safe for human consumption. During 1967, the Bureau reviewed 1,200 new drug applications. The Bureau also processed 7,700 applications for the use of new drugs in the manufacture of medicated feeds.

Department of Defense

Veterinary officers in the Armed Forces work closely with the Medical Corps and other health services wherever prevention of diseases and the promotion of the well being and efficiency of the soldier, sailor and airman is at stake. In addition to food inspection, veterinary officers help in maintaining surveillance over post or base sanitation, and are called upon to assist in controlling epidemic disease outbreaks where knowledge of the cause, source, prevention, and procedures for disease eradication is essential. The military veterinarian is also an important member of the epidemiological team.

Military veterinarians assigned to the Walter Reed Institute of Research and the Armed Forces Institute of Pathology are directly concerned with the identification, control and eradication of the major animal diseases transmissible to man. In support of these basic objectives, veterinarians are currently engaged in areas such as pathologic examinations, research in nutritional diseases, basic studies in immunopathology, development of new vaccines and improvement of existing ones, studies in the pathogenesis of "standard" and "new" diseases of laboratory animals, and development of better biological systems for viral isolation studies.

Aero-space and bio-astronautics research programs using experimental animals are conducted by Air Force biomedical teams. These studies on animals encompass hyperventilation, anoxia, overpressures, radiation, deceleration, acceleration, and related hazards, and stresses of space travel. Data derived from these studies are interpreted with a view to man. Some 60 Air Force veterinary officers with post-doctoral training in medical-scientific disciplines such as pathology, laboratory animal medicine, food technology, raidobiology, physiology and toxicology, serve as essential members of the biomedical research teams. These highly trained veterinary officers provide the Air Force Medical Services with a research capability and a reservoir of knowledge and skills in widely diversified areas.

Military veterinarians have made many contributions to the health and comfort of civilians. Perhaps the broadest service of the military veterinarian to the health of the public was the establishment and maintenance of minimum standards of sanitation in many thousands of food producing and processing establishments throughout the country. Such establishments had to comply with military standards of sanitation in order to qualify for government con-

tracts. As a result, quality control and improved sanitary methods were taught to a large segment of the American food industry.

There were approximately 2,200 veterinarians in the military service during World War II.

3. INSTITUTIONAL WORK

Teaching

Of the 18 colleges of veterinary medicine in the United States 17 are state institutions relying on state funds as their primary source of financial support. The 18 veterinary colleges employ approximately 1,400 veterinarians on their faculties, and in 1967–68 enrolled 4,623 students. Veterinarians are also employed by universities which do not have veterinary colleges, to teach students enrolled in agricultural and biological science programs, to conduct health-related research involving animals, and to care for university-owned animals.

Veterinarians also are being employed in increasing numbers by medical schools in the areas of comparative medicine, pathology, epidemiology, and as laboratory animal specialists.

Research

In the United States, the total annual losses of livestock and poultry and their products through disease, parasites and insect pests amount to about 2.7 billion dollars (Losses in Agriculture. Agriculture Handbook No. 291, Agricultural Research Service, U.S.D.A., August 1965).

The need to increase the effectiveness of animal disease control is urgent not only because animal diseases are economically wasteful, but also because many of these diseases are transmissible to man.

In 1965, it was estimated that veterinarians in the animal health industry (pharmaceutical and biological) alone controlled a segment of industry valued at $600 million annually. Veterinarians hold positions of leadership in approximately 310 different companies operating in the chemical and pharmaceutical industries of the United States.

Although many veterinarians engaged in research serve the areas of animal health, veterinarians play a vital role in industrial research and development of drugs and other chemicals consumed by man. The greatest recruiting fervor is in the field of toxicology. Veterinary toxicologists are primarily concernd with developing knowledge of the toxic potential of chemical substances, and their fate in the environment, in order to prevent poisoning. Veterinarians serve as directors of toxicology research for many of the major pharmaceutical companies developing drugs for human use.

Veterinarians have pioneered in toxicologic research concerning space; environmental hazards; pesticides; toxicants in food, air, and water pollution; and chemical warfare agents.

Veterinarians' activities include research in the discovery and development of drugs and other chemicals to be used as food additives in the treatment of human and animal diseases. After a new cehmical is syntheized, the veterinarian is responsible for determining the potential value of the chemical in treatment of disease. Before the chemical can be released for human trial, he must determine, through a long series of testing in many species of animals whether or not the chemical is toxic.

Veterinarians in the biologics industry are engaged in discovery and development of new vaccines, serums, and other biological products of animal origins. Veterinarians have the responsibility not only for determining the value of potential products, but also for assuring both the safety and potency of the products. Federal veterinarians supervise activities in 58 companies licensed to produce biologics for disease prevention and as treatment.

4. COMPARATIVE MEDICINE

Since the time of Pasteur, veterinary medical scientists have made significant contributions to medical science. Smith and Kilbourne's recognition that an arthropod could serve as a vector of an infectious disease, Texas fever, was a highly important medical discovery. Jenner's use of cowpox virus to immunize against smallpox, and Ramon's success in producing an effective immunizing agent against tetanus in horses were medical milestones. Dr. Karl F. Meyer's work on botulism was hailed by medicine and the canning industry as a major accomplishment against this highly fatal food-borne disease. Commonly used fracture splints (Stader) and hip prostheses (Gorman), as well as spinal an-

esthesia were first clinically (Benesch) developed by veterinarians in the treatment of animals. Today's widespread use of oral polio vaccines follows a 15 year period during which oral polio vaccine proved effective in animals. Hundreds of similar examples of the contributions of veterinary medicine to medical science could be listed. Current studies in comparative cardiology, cancer, connective tissue diseases, metabolism, hematology, muscle disorders and infectious diseases undoubtedly will yield similar results.

Veterinary medicine occupies a particularly advantageous position among the sciences in its opportunity to make contributions to medical science. Nearly every member of the veterinary medical profession, whether he is engaged in private practice, regulatory veterinary medicine, or in research, constantly encounters disease conditions in animals an understanding of which may contribute to medical science and the welfare of mankind. The profession has an obligation to exploit opportunities to study animal diseases to the extent of its resources.

Many of the most prevalent and serious human diseases have counterparts in animals. Vital experimental procedures which rule out the use of man may be undertaken jointly by physicians and veterinarians on animals serving as experimental models.

In this context, several animal diseases are receiving increased attention. Leukemias and Hodgkins type tumors occur frequently in domestic animals; they are similar in most respects to their human counterparts. Other forms of cancer common in animals, particularly dogs, provide excellent opportunities for investigating these diseases with a view on man.

There are respiratory diseases in animals which at present are largely unexplored, and which present distinct similarities to several important human diseases. Pulmonary emphysema of horses and cattle, and certain viral pneumonias of cattle, sheep, and dogs may be cited as examples.

Degenerative nervous disorders similar to multiple sclerosis in man are represented in several animal species.

There are several collagen or immunogenic diseases, particularly in dogs, horses, mink and mice, which provide counterparts to such human ailments as rheumatoid arthritis, collegen associated kidney disease, lupus, and certain forms of anemia. Some of the animal diseases known to be caused by viruses may provide answers to certain human problems. Cardiovascular diseases, particularly of older dogs, are common examples of other experimental models.

Many more examples may be cited. The broad training offered in veterinary medicine, encompassing several animal species, provides an ideal background for the pursuit of such studies. Full utilization of the unique capabilities of veterinarians may well shorten the search for answers to many enigmatic human diseases.

Many medical schools and hospitals engage veterinarians as full time faculty members in teaching and research. This permits emphasis on comparative studies to medical students and researchers and promotes collaborative efforts. A program of this nature is under way at the Johns Hopkins School of Medicine. Five veterinarians on the medical faculty are actively engaged in collaborative research in comparative medicine. More positions are open in other institutions but cannot be filled because of the dearth of trained veterinarians.

5. LABORATORY ANIMAL MEDICINE

The expanding establishment of laboratory animal colonies in medical and dental schools, large hospitals, drug companies, feed manufacturing firms and other institutions has created an urgent need for veterinarians trained in laboratory animal medicine, which is closely allied to comparative medicine. Healthy, genetically defined laboratory animals are essential to medical research. What was generally acceptable 20 years ago as a laboratory mouse or rat would have little value today. As research becomes more sophisticated the demand for pedigreed rodents, either with known microbial flora or completely germ free, is rising.

Laboratory animals are now used extensively in medical research. Studies on these animals have led to improvements in the health of both human beings and animals. An understanding of naturally occurring diseases of laboratory animals is necessary for the interpretation of results of experimentation. The National Institutes of Health now have a section whose veterinarians devote their efforts to the study of such diseases. There has been a continuing improvement of the health care and humane standards for the use of experimental animals.

Veterinarians are ideally qualified to select or control the reproduction of healthy animals for medical research, to insure their well being and humane treatment during the holding period prior to conducting experiments, and to provide proper post-experimental care.

As a result of the passage in 1966 of the Laboratory Animal Welfare Act—which specified "adequate veterinary care" in the faciilties covered by the bill—new and heavy demands are being placed on veterinary medicine to fill positions for laboratory animal specialists.

6. ZOONOSES

Zoonoses are infectious diseases of animals which are transmissible to man. There are over 100 known diseases, according to the World Health Organization, which people can acquire from animals. In the field of zoonoses the veterinarian plays a key role on the epidemiologic team.

Rabies, associated with the bites of rabies infected animals, has been known and feared since antiquity. Veterinarians have played a major role in reducing the incidence of rabies in domestic animals, with corresponding reduction in human rabies. In fact, 1967 marks the first year in our history with no recorded deaths from rabies. However, an ominous development in recent years has been the increasing recognition of rabies in wild animals, notably in bats. More than 30,000 persons each year are bitten by suspected rabid animals and are required to take treatment. It will take a concerted effort to insure public protection against this new threat.

Horses and man fall common victims to viral sleeping sickness (encephalomyelitis). This mosquito-transmitted infection is carried by apparently healthy wild animals and birds, and therefore is difficult to eradicate. Man and horses acquire the disease as a result of being bitten by infected mosquitos, but do not spread the disease themselves. A veterinarian, Dr. Karl F. Meyer, of the University of California, was the first to recognize virus encephalitis in American horses (1930), and the first to warn of the danger of this disease to man. A veterinarian, Brigadier General Raymond A. Kelser, of the U.S. Army Veterinary Corps, was the first to show that encephalitis virus is transmitted by mosquito bites (1933).

Salmonellosis, influenza, infectious hepatitis, staphylococcal infections, and internal parasitisms caused by the tapeworms of cattle and swine, are some of the diseases also capable of being transmitted by or from animals to man.

Basic to the most effective progress toward suppressing the zoonoses are efforts such as those mounted in 1960 with the establishment of the Illinois Center for Zoonose Research, a component of the University's College of Veterinary Medicine. Unique is the multidisciplinary team approach of the Center toward ascertaining the factors that bear on emergency and recession of zoonotic diseases. The recognition that no one profession or scientific discipline, medical or other, has the total competence to solve complex problems of even a few zoonoses, a staff composed of veterinarians, physicians, anthropologists, ecologists, climatologists, demographers, microbiologists, zoologists and other scientists has initiated already fruitful and promising programs.

The World Health Organization's Advisory Committee has pointed out that one should not overlook the dynamic and changing pattern of microorganisms, heir adaptation to the new animal hosts, and their potential and actual transfer to human beings as pathogenic organisms. The Committee stated, "The emergence of new zoonoses or the uncovering of unsuspected human-animal relationships in communicable diseases are therefore to be expected."

Recent emphasis has been placed on the transmission of disease from *man to animal*. In the past it was considered logical to assume that the animal could act as a reservoir of human disease. The reverse possibility, while equally logical, had only recently been given any serious thought.

Since it is now rare for man to acquire tuberculosis from cattle, regulatory officials are becoming more acutely aware of the problem of cattle contracting the disease from man. The problem is not only reported in the United States, but also in other countries, including the Netherlands, Great Britain and Israel.

7. THE FOREIGN DISEASE THREAT

The concept of "prevention" has enabled veterinarians to protect this country from the importation of diseases that could adversely affect our food supply, economy and health.

Over the past few years many animal diseases and parasites, once relatively confined to small areas, have penetrated the local defensive barriers of other countries. South African types of foot and mouth disease virus (SAT–FMD), African horse sickness and African swine fevel have spread from endemic areas with disastrous results among the domestic animal populations. SAT–FMD was first reported outside of Africa in 1962—spreading to the Middle and Near East and subsequently into Iraq, Israel, Jordan and Syria, Turkey and Iran. Asian Type I FMD was reported in Israel and West Pakistan in 1964. It has since been reported in Russia with serious loss of livestock and now threatens the farm animals of Eastern Europe. The seriousness of this outbreak is emphasized by the lack of an effective protective vaccine for control purposes. African horse sickness spread to the Near and Middle East, subsequently to India, with the result that there has been a devastating reduction in animal transport and power in those countries depending solely on the equine species for such services. African swine fever spread into Portugal, Spain, and France, killing millions of swine. All of these could be brought to the United States to challenge all of our defenses against importation of disease.

Lumpy skin disease of cattle, Rift Valley fever (an important viral disease of sheep, cattle and man) and East Coast fever (a highly fatal protozoan disease of cattle) are being reported in areas far beyond those of their origin.

Great Britain has just experienced the most severe outbreak of foot-and-mouth disease in its history. According to the Animal Health Division of U.S.D.A., over 2,300 herds (415,800 animals) died or were slaughtered from the beginning of the outbreak to February 1968 in a campaign to eradicate this devastating disease.

Diseases and pests continue to travel with man, animals and plants. In our modern world, international commerce in livestock and food products is ever increasing, providing many new opportunities for rapid spread of disease. International trade and travel continue to increase between areas that were formerly remote and not readily accessible. Man can and does, innocently or illicitly, carry with him items of food and plants that are hosts to disease organisms. There has been a steady and rapid increase of this kind of traffic to the United States.

Through inspection of imported animals, poultry, and all aminal by-products, veterinarians prevent entry of foreign diseases into the United States. Of the 981,000 animals and 2,950,829 birds presented for import during 1967, 43,961 animals and 9,365 birds were refused entry because they were carrying diseases contagious to man and animals. During the same fiscal year, veterinarians inspected and certified over 69,000 animals for export to foreign countries. Additionally, more than 15.6 million pounds of meat and meat food products from foreign countries were condemned or refused entry in 1967 (figures supplied by U.S.D.A., Animal Health Division).

8. RADIOLOGICAL HEALTH

Nuclear energy and its byproducts affect the biosphere in such a manner that their study necessitates a multidisciplinary approach. Because environmental medicine is the major theme of veterinary education, and because the impact of the environment is studied for many species of mammals and birds, veterinary medicine is an important discipline in radiological health.

The Public Health Service has recognized the important contributions veterinary medicine can make to its various program activities, particularly in the area of biomedical research. The Service's Division of Radiological Health employes fourteen veterinarians. In most instances, these veterinarians have had specialized post-graduate training in radiobiology, radiological health, or associated specialties such as biophysics, radiation pathology, biochemistry, and similar fields.

Further recognition of the importance of veterinary medicine is reflected in the radiological health training grant program sponsored by the Radiological Health Division; one of the most successful of these programs has been conducted since 1961 by the graduate school of the Veterinary Medical College of Colorado State University. The research projects include studies of the developmental and aging effects of radiation exposure on large colonies of animals.

The Atomic Energy Commission also utilizes veterinarians in planning and conducting research. Objects of their studies include the effects of radioactive

isotopes on the biological systems of animals, and the movement of radioactive materials in food.

Veterinarians on the staff of the U.S. Department of Agriculture conduct similar studies dealing, for example, with the effects of radioactive fallout on agricultural production. These studies include the development of remedial measures that can alter the movements of radioisotopes in the food chain, including food animals, and reduce or eliminate the consumer's intake of radioactive materials.

9. PROTECTION OF ENVIRONMENT

One of the major concerns of health authorities today is the progressive contamination of our environment. Air and water pollution and food contamination concern the health community as never before. Veterinarians are aware of the responsibility they have in assuring the safe use of pesticides and food additives. The veterinary profession has contributed to research undertaken to study the movement of environmental contaminants through the food chain to man. Moreover, veterinarians are in a position to influence the safe use of animal feed additives and pesticides by their clients and others. By example, in their daily contacts with the owners of animals, and through their employment in governmental and regulatory agencies, veterinarians are in the forefront of the battle against environmental contamination.

STATEMENT OF ALVIN A. PRICE, D.V.M., DEAN, COLLEGE OF VETERINARY MEDICINE, TEXAS A. & M. UNIVERSITY

An important and significant part of the broad area of public health is the environment in which man lives, works, and plays. It is a scientific truth that health and disease are related to the conditions of the habitat in which a living individual resides. When the environment is polluted, contaminated, or otherwise not compatible with the physiological well being of the creatures living within it, the health of its living inhabitants will deteriorate. Therefore, public health is more than medicine. Public health depends upon the continuing surveillance and active programs of many disciplines, one of which is veterinary medicine.

The contributions of veterinary medicine to public health have been documented. The eighteen colleges of veterinary medicine in the United States are a national resource in that by far the majority of the veterinarians of the United States who are actively engaged in the practice of the profession were educated in those eighteen colleges of veterinary medicine. Through 1965, the currently existing colleges of veterinary medicine had graduated over 25,000 veterinarians, more than the total number engaged in the profession in the same year.

In addition to the educating of veterinarians, colleges of veterinary medicine are central to research in the area of animal health and disease. Human health, from the consumption of animal product foods to pets in the family household to the condition of wildlife in areas of recreation, is related to animal health. Biomedical research, in its broad application, is dependent upon the use of animals. Without veterinary medical care and study, these animals would not be the effective laboratory tools they are today and medical progress would be severely curtailed.

Colleges of veterinary medicine supply the trained manpower to maintain protein food producing animals in a high state of health and efficiency for the producer and consumer. America is the safest place in the world in which to invest in and rear livestock because it has a resource of trained veterinary medical manpower.

Only 10 nations of the world have agricultural surpluses and those are decreasing. Those 10 nations contain only 15% of the world population. By the 1980's, those surpluses may not be available to help feed the other 85% of the world population.

About 40% of the world's livestock is in the developed countries and these countries provide 80% of the world's animal protein foods. If productivity in the underdeveloped countries which have 60% of the world's livestock could be brought to the efficiency attained in the developed countries, there would be adequate protein foods for all.

In the underdeveloped countries, 60% of the people suffer from malnutrition. Three million children die each year from causes related to or aggravated by

malnutrition. Adequate animal protein foods are desperately needed to reduce the tide of starvation. Improved animal health can go a long way toward achieving such a goal.

Colleges of veterinary medicine throughout the United States lack the necessary facilities and operation capital with which to train the number of veterinarians needed in this country. Salary scales for faculty and staff are less than those required to attract and maintain the personnel with the qualifications essential to the teaching and research programs. Especially critical in some of the colleges is the inability to employ and retain qualified subprofessional personnel. The 18 colleges of veterinary medicine are mostly state supported and the 17 states in which colleges are located cannot carry the full load for the entire nation. More states should build and finance colleges of veterinary medicine. This is not likely to happen without Federal assistance.

Basic improvement grants to currently existing colleges of veterinary medicine are sorely needed to make improvements in weaker areas of the total college programs. Strong areas can achieve support more easily than weaker ones. Consequently, the strong grow stronger and the weak grow weaker. This does not achieve the total goal of efficiency and effectiveness toward which all colleges wish to move.

Two relatively new programs have become the obligations of colleges of veterinary medicine and for which the colleges are not equipped, staffed, and adequately supported. These programs are: (1) the training of auxiliary personnel, and (2) continuing education. Both of these programs are extremely important in the total veterinary medical manpower pool and in the updating of former graduates. Because these programs are not adequately supported and because the colleges cannot default in these great needs, these programs are eroding the already inadequate resources of every veterinary medical college in the country. Formula based and continuing Federal assistance to all colleges of veterinary medicine is desperately needed for achieving the laudable goals of these two programs.

Congress is urged to lend a sympathetic ear and a helping hand in the crisis which is upon the veterinary medical colleges of this great nation. By so doing, veterinary medicine can continue to play the vastly important role in helping to make America stronger and the people of the world a better fed and healthier population that some day the people of all nations may live more comfortably in a more tranquil environment and in peace one with the other.

STATEMENT OF DR. M. R. CLARKSON, EXECUTIVE SECRETARY, AMERICAN VETERINARY MEDICAL ASSOCIATION

To talk about the future of veterinary medical education means, of course, to talk about the future of veterinary medicine. Learned discussions about curriculum, teaching aids, student selection, and faculty assignment are always fascinating, but they will remain largely irrelevant unless their usefulness is constantly measured against the question: How will tomorrow's veterinarian fit into tomorrow's society?

That society is in the making today, and the changes we witness are nothing but the first manifestations of the new socio-economic environment for which we will have to train our students. Veterinary medical practice has already been profoundly affected by these changes; veterinary medical education, on the other hand, is just beginning to reorient itself structurally and functionally to the incipient realities of the 21st century.

The principal changes which, in my opinion, will most significantly influence veterinary medical education are now occurring in the fields of agricultural economics, in housing and urban development, and in biomedical research.

As far as agriculture is concerned, the two most important developments to affect veterinary medicine's role in this complex and vital sector of our economy are these: First, a marked trend toward huge livestock units managed with all the efficiency and ramifications of the most modern, diversified business enterprise. Second, the urgent task to provide foods of animal origin for a sharply rising population at home, and to satisfy, whether by direct assistance programs or through the export of knowledge, and protein hunger of the rapidly expanding populations of large underdeveloped areas of the world.

The increasing density of herds, coupled with advanced technology in livestock production and management, has already led to marked changes in the

nature of large animal practice. If my interpretation of these changes is correct, a thorough grounding in the principles of epidemiology, refined diagnostic skills, a keen understanding of the art of working with others in a multi-specialty group practice, and a sure footing in agricultural economics have become indispensable tools in training today's veterinary student to meet tomorrow's agricultural world. As an illustration, the current foot-and-mouth disease epizootic in England may impress us today as an isolated, though tragic occurrence. In the years ahead, epizootics of many dangerous animal diseases could be ever-present threats unless the veterinary medical profession is fully prepared to meet them through both long-range programs of prevention, and immediate control measures.

The need to feed our own growing populace and to help feed others will make unprecedented demands on veterinary medicine in terms of manpower, training, and skills. In an article appearing in a recent issue of the Journal of the American Veterinary Medical Association, Dr. J. C. Thompson, Jr., of the Department of Physical Biology at Cornell University, reported that "as the world attempts to solve its food problems, the need for veterinarians will increase tremendously. Without control of diseases and improved survivability there will be little improvement in food productivity from animals."

To train veterinarians in sufficient numbers to meet world-wide demands for their services is, of course, essential. But something else seems to me significant. The world food situation, growing more serious each year, undoubtedly will give rise within the profession to the need for global exchanges of knowledge, skills, and programs of education, and thereby add to the profession a new world-wide dimension. Its impact on veterinary medicine, already acutely felt by medicine, dentistry, and other health professions, could be considerable.

In turning now to urbanization as the second field of consequence to veterinary medical education, I am addressing myself chiefly, although by no means exclusively, to the small animal practitioner. Here, again, we come across the words "density" and "exchange of ideas" as key words characterizing the changes which importantly influence both practice and education. Density, because population growth, crowded living conditions in our cities, and the increasing popularity of companion animals all combine to emphasize the interdependence of animal health and human health. One immediate effect of these factors will be that they will bring into sharp focus the public health responsibilities of the small animal practitioner, an aspect of small animal medicine which has not found in the veterinary medical curriculum the consideration it requires.

Exchange of ideas, because a sophisticated, prosperous, mundane, and acutely health conscious pet owner will expect for his animal the same kind of superior medical service he takes for granted when it comes to his own health requirements. Moreover, as the ownership of a pet becomes for many a source of emotional stability in a society in which the individual is submerged, we must increasingly turn our attention to the fears and anxieties of the pet owner as well as to the maladies and afflictions of the pet. All of these trends combine to create new points of contact and reference between small animal medicine and other professional disciplines, and contain obvious implications for veterinary medical education. The persistent urging by many of our best educators for a surer footing of the veterinary student in the liberal arts and humanities will be vindicated in the clinics of tomorrow.

With these remarks I am already touching on yet another development whose impact on veterinary medicine has been, and will continue to be, enormous: specialization. Unquestionably a boon to the profession, it also causes many of the headaches that plague veterinary medical administrators and educators alike: How can we preserve unity of organization while encouraging diversity of scientific interest and competence? How can we bring the new research findings—doubling, as some say, every five to ten years—to those who, although often still young in years, have become professionally obsolete? How should we design the pre-veterinary curriculum, the professional courses, and post-graduate training to achieve, without becoming superficial, a maximum exposure of our students to the scene of contemporary biology and medicine?

Top advances in the life sciences are the feat of Dr. Arthur Kornberg of Stanford University and Dr. Mehrad Gouliam of the University of Chicago in synthesizing a virus-like substance and thereby creating a primitive form of life; and the human-to-human heart transplants carried out in Cape Town, South Africa, and in California. I am mentioning these two events because they

illustrate the breathtaking pace at which we are moving in the domain of biomedicine. Surely, achievements such as these are of intense interest to veterinarians and, therefore, should be in the back of our minds when we talk about the development of tomorrow's veterinarian.

You might say, "But we still have parasites in pets, and scours in calves." We do, and we probably will for a long time to come. However, it is against this background of an age literally reaching for the stars that we must measure our plans and efforts in veterinary medical education. In the light of the changes briefly summarized it seems, for example, that the requirements for pre-veterinary education should be questioned. The current 2-year pre-professional education may no longer be adequate to give the student an understanding of society, to teach him to think, and to offer him those courses which are prerequisite to his professional courses. Should we, then, restrict the selection of veterinary students to graduates of baccalaureate programs of various kinds? Since veterinary students today frequently have 4 years of pre-veterinary training, this step, which finds approval among many educators, should not be difficult to accomplish.

The purpose of the professional curriculum is to provide the foundation upon which graduates develop the many competencies necessary for the profession to fulfill its role of service to society. The student should be taught the principles of biology and medicine, and acquire at least a basic understanding of the art and science of clinical veterinary medicine.

But, the professional course of studies, no matter how sophisticated or diversified, today points beyond itself to a lifetime of learning. Postdoctoral education, graduate education in the basic sciences, internships and preceptorships and, perhaps most important of all, programs that bring the latest findings of research and experience to the practitioners, are indispensable parts of the total programming of veterinary medical education.

These thoughts about the future of veterinary medical education may not be uppermost on your minds as you are about to begin construction of a new college of veterinary medicine on this campus. You might have found it more helpful—and probably more entertaining—had I titled my talk "Seven Mistakes Most Commonly Made By Planners and Builders of Colleges of Veterinary Medicine" or, "How I Built A 15 Million Dollar College With Only 19 Million Dollars." For a while I indeed intended to address my remarks to the practical issues and problems you are facing in building your school. I could have talked, for example, about the wisdom of allocating sufficient construction funds; the need to recruit an adequate number of qualified faculty members; and about such technical and mechanical things as an audio-visual center; an adequate library; service laboratories; integrated study courses; closed-circuit television; the vital need for adequate clinical materials, and even the need to plan for expansion before you have laid the cornerstone to your first building.

Yet I felt, for one thing, that there are people available to you who, because of their experience and training, are much more qualified than I to speak to you about these things. Moreover, I was certain that there were very few things, if any, you hadn't already thoroughly explored at this stage of your development program. Lastly, I didn't wish to usurp the responsibilities of the AVMA's Council on Education which, in its "Essentials of An Acceptable Veterinary Medical School," explicitly states that it will assist schools to meet the requirements for accreditation, and that it will consider evaluation of a newly established school at any stage of its development.

There could be no more propitious time for building a new college of veterinary medicine. The urgency of such an undertaking is amply illustrated by three recent legislative measures. The Veterinary Medical Education Act of 1966 marks the first significant national attempt to balance the supply of veterinarians against the nation's steeply rising demands for their services. It has created a favorable climate for your goals and will provide some of the means essential for their accomplishment. Following on the heels of this piece of legislation, the Laboratory Animal Welfare Act and the Wholeosme Meat Act of 1967 have focused national attention on two vital areas, medical research and consumer health protection, in which success or failure depends crucially on the availability of well-trained veterinary medical personnel.

Yet for my part, I feel that the grand design, the vision, if you will, of this profession at the age in which it operates will ultimately determine the success or failure of your new college in graduating the type of veterinarian we need and want. More than 200 years have passed since Claude Bourgelat, the French

lawyer and riding master, founded the world's first school specializing in veterinary science. The buildings of the small Ecole veterinaire at Lyons may have been, according to our modern standards, primitive, and the textbooks he wrote for his students, and which they had to learn by heart, may be as obsolete today as the methods of diagnosis and treatment he practiced. Yet his understanding of the importance of scientific research, which finally triumphed over the deeply entrenched empirical and often superstitious procedures of the past, and his intuitive grasp of the moral nature of our profession are of timeless validity. There is in the code of ethics he wrote for his students a passage which expresses well what I believe must be the final justification of efforts in training a new generation of veterinarians. "Ever imbued with the principles of honor imparted to them," he wrote, "the students will never depart from them. They will distinguish between the poor and the rich. They will never set too high a price on the talents which they owe only to the benevolence and the generosity of their country. Finally, they will prove by their conduct that they are all equally convinced that wealth exists less in what one possesses than in the good one can do with it."

Thank you.

STATEMENT OF DR. JOHN S. MCKIBBEN, PROFESSOR, DEPARTMENT OF ANATOMY, COLLEGE OF VETERINARY MEDICINE, IOWA STATE UNIVERSITY, AMES, IOWA

VETERINARY EDUCATION

Veterinary educators are faced with the critical decision of when and how we should teach the increasing amount of pertinent knowledge demanded by our profession. Expansion in clinical areas has condensed the time devoted in the basic areas. Can we relieve some pressures on the professional curriculum through the preveterinary, graduate, or post-graduate programs? Is our objective to graduate better qualified veterinarians in all areas or should we specialize? Are we still stereotyped by the past?

Historical trends in our profession have influenced some of our present answers to these questions. The first veterinary school established in Lyons, France, in 1761, emphasized one animal, the horse, and particularly its anatomy. Similar emphasis was noted at the first state supported College of Veterinary Medicine in the United States established in 1879, at the institution now designated Iowa State University. Between 1852 and 1948, some thirty-four, mostly private veterinary schools were initiated and closed in the United States and Canada. Many occupied livery stables where the emphasis was on learning by doing. Matriculation requirements usually included an elementary or grade school diploma. The course typically consisted of two sessions of four months each.

The evolving curriculum

In the first quarter of the twentieth century, three-year programs were generally required in college veterinary curricula. De-emphasis of the horse and cooperation in more complex studies of all domestic animals and factors related to disease commenced.

The public image of the veterinarian as a horse doctor persisted resulting in the lack of financial appropriations for the dying profession. Progress was stymied in all areas of veterinary education. It was emphasized that research and education must be depended upon to keep the veterinary profession from lagging behind its sister profession. Knowledge had increased faster than it was possible to change curricula to meet the newer needs of graduates.

During the 1930's, few students could afford college. Nevertheless, great strides were undertaken to improve the curricula to prepare the students in various fields of veterinary medicine. Screening students and requiring one year of preveterinary training was instituted.

By the middle of the twentieth century according to Armistead, the curricula of veterinary schools fitted by habit, provincialism and conservatism, were stereotyped patterns which had not changed significantly in fifty years. Curricula were overcrowded as expansion of knowledge increased without provision for increased learning time. This is still our situation today.

Objectives and methods

In addition to more sophisticated teaching methods, pre-veterinary, graduate, or post-graduate programs should be further developed to present increased knowledge. A longer pre-professional training period has been proposed. This

apparently is occurring naturally because of the increasing competition for admission into a relatively static profession numerically. Since 1949, all veterinary schools in the United States have required two years of pre-veterinary training. In 1965, 860 of 1,388 first-year veterinary students in the United States had completed more than the required two years of pre-veterinary training. This period has been generally regarded as a time when students broaden their education. It has become, however, a period with little flexibility, with elective courses quite limited. Required courses in mathematics, chemistry, physics, and English need to be, but are in all too few instances, adequately covered in high school. This allows more time for more broadening electives in the pre-veterinary curriculum.

Block of time are continually shifting within the framework of the four-year professional curriculum. The efficiency of the traditional four-year curriculum has been challenged. The trimester program now in effect since 1963 at the Texas A & M College of Veterinary Medicine provides additional student contact hours and reduces the total investment by students in time and money. Students graduate after nine continuous terms or three years under this system. The Michigan State program includes eleven quarters of eleven weeks each. A three-year program designed for the Iowa State Veterinary College has not yet been instituted. Various methods have been employed to ensure adequate coverage of basic material and still allow clinical experience before graduation. None has been successful in producing veterinarians proficient in all phases of veterinary medicine upon graduation. Instead, hopefully, we have provided each student with basic information upon which he can build his proficiency by further study and experience. As our profession matures, the now heterogeneously emphasized facets of the curricula characterizing each veterinary school should mold into a more homogenous whole. Perhaps then we can eliminate national and state board examinations.

The present author agrees with Armistead and Clarkson that specialization in veterinary practice is not only inevitable, but is desirable and is a symptom of growth. Programs designed for further experience and specialization in human medicine are in existence in veterinary medicine. These include preceptorships, post-graduate training, and graduate education.

Preceptorships or *precepteeships* involve undergraduate third and fourth year veterinary students who are sent singly or in pairs for variable periods of time with a practicing veterinarian. The last preceptorship program in the dental profession will be dropped this year and only 20 of the 86 medical schools had preceptorships in 1962.

Some feel that this program at the Auburn School of Veterinary Medicine is very beneficial. Three months of the senior year is spent with selected practitioners under this program. The present author finds conflict between the need for more time to present material and the premature entrance into practice.

Postgraduate training by symposiums, seminars, workshops, and short courses offered by universities, clinics, and veterinary organizations offers an excellent though limited means of reaching practitioners. It serves primarily as a refresher program or as a means for informing practitioners of new developments or techniques. Not enough practitioners participate unfortunately.

Graduate programs include internships, residencies, and degree programs. Internships immediately follow graduation from veterinary school and consist of one or two years of supervised practice in medicine with continued instruction in the science and art of medicine. The intern learns by doing and by association with experienced clinicians. Residencies include education and training following the internship which provides preparation for the practice of a specialty. Three or more years are generally served. Graduate programs leading to the degrees Master of Science or Doctor of Philosophy are generally preserved for academic or industrial futures rather than to improve ones practice skills and knowledge.

The present author agrees with Pritchard that graduate programs are the weakest link in the chain of veterinary medical education today. Compulsory graduate programs are in existence in many foreign countries including India, Germany, Holland, and Scotland. Some indicate that internships should be the responsibility of the licensing authorities in the state where the applicant seeks to practice. Graduate programs at universities generally have the advantage of a better staff and facilities; however, instituting internships at universities on a large scale would require the allocation of further funds which probably would not gain priority in the legislatures. Presently, Societies for the Prevention of Cruelty to animals, several veterinary schools, and scattered group practices

provide a limited number of internships in small animal medicine. Far more applicants are turned away than accepted, however. This author would encourage an expansion of the former and latter programs to better meet the demands in this area. Far fewer internships are offered in large animal medicine. This author believes this will change within the next ten years, as the advantages of group practices are more fully appreciated. Specialization within these clinics will ensue and further demands will be made on universities for residency programs. Presently some universities and S.P.C.A. organizations employ residency programs.

SUMMARY

The veterinary curriculum has changed over the past century in the United States. Eras which concentrated on the health of one animal or group of animals have been expanded to include not only the health of all our domestic animals, but emphasis on public health, laboratory animals, and various research projects. The problems of public image and lack of financial support are still not entirely solved. We have evolved from the status of technician to more deductive and inductive veterinarians. To continue our self improvement specialization seems inevitable. This cannot replace the basic core of material obtained in the professional curriculum, but must be built upon this framework. Greater responsibilities must also be assumed by the high schools, thus allowing better utilization of the prime time in the pre-veterinary curriculum. We are still stereotyped after the past, but with innovation and insight we can convert the influences of the past into assets in the future.

STATEMENT OF NICHOLAS H. BOOTH, DEAN, COLLEGE OF VETERINARY MEDICINE AND BIOMEDICAL SCIENCES, COLORADO STATE UNIVERSITY, FORT COLLINS, COLO.

Veterinary medicine is now contributing significantly to the total biomedical effort of the nation in many health disciplines, including public health. Unequivocally, the prevention and control of animal diseases are not only important from a public health standpoint but are necessary, if the animal protein and nutritional needs of an expanding human populations are met. Accordingly to Dr. M. R. Clarkson, Executive Secretary of the American Veterinary Medical Association, "The greatest single obstacle to meeting the world's requirements for food products of animal origin is the crippling and unnecessary drain incessantly inflicted upon the world's food resources by major infectious and parasitic livestock diseases".

In biomedical research, veterinary medicine is serving importantly in advancing knowledge which is basic to the understanding of animal and human disease processes. The importance of using animal models in studying genetic, metabolic and pathologic conditions similar to those seen in man is an excellent example of veterinary medicine's contribution to public health. Presently, colleges of veterinary medicine in the United States provide intensive instruction in several courses relating to public health. For example, courses on dairy and meat products inspection, epizootiology, and zoonoses are offered to veterinary medical students. Consequently, the veterinarian is trained to serve side by side with other members of the health professions within the public health diciplines.

Colleges of veterinary medicine are important national resources which deserve considerable financial support from state, federal, and private sources. If superior talent is attracted into veterinary public health, fellowship and assistantship support is critically needed at the postgraduate level concomitant with improved support at the undergraduate level. Furthermore, sufficient financial resources are needed in the recruitment of topnotch biomedical instructors and scientists. Although financial support renovation and construction of facilities has been difficult to procure for colleges of veterinary medicine, passage of PL 89–709 by Congress in 1966 is expected to assist immeasurably in replacing obsolescent equipment and facilities as well as to assist in the expansion of present facilities in many of the veterinary medical colleges. Unquestionably, past and current financial support of colleges of veterinary medicine from state and federal sources has been considerably below the level that is necessary to maintain high caliber instructional and research programs. Although the Colorado State Legislature has been sympathetic to the annual financial requests of the College of Veterinary Medicine and Biomedical Sciences

at Colorado State University, only a small fraction of the requests were granted because public funds were inadequate.

The annual loss of food-producing animals from infectious and parasitic diseases in the United States is approximately three billion dollars. This figure exceeded all the money appropriated, i.e., 2,618.1 million dollars, for the U.S. Public Health Service and also exceeded the 1,123.2 million dollars appropriated to the National Institutes of Health in fiscal year 1967. The total budgets spent on veterinary medical education and research in 1967 are estimated at less than 30 million dollars for the 18 veterinary medical colleges and represent less than one percent of the annual sum of money lost from animal diseases. It is indeed unfortunate that such a small amount of money is being invested for veterinary medical education and research in the United States. Improvement in human health resulting from control of animal diseases will more than justify all public expenditures for veterinary medical education, research, and all animal disease control programs ever conducted in the United States.

Since it is estimated that twice the number of veterinarians over the present number, i.e., 26,000 is needed by 1980 in North America, greater financial support will be required to overcome the severe manpower shortage. Expansion of present facilities and the development of new colleges of veterinary medicine cannot possibly occur rapidly enough by this time to double the number of veterinarians. Despite this, every effort must be made at the state and federal levels to increase the output of well trained and competent veterinarians to meet the public health and animal health needs of the nation. In moving toward this objective, a realistic balance between education and research must be attempted. Veterinary medical education in our colleges could be greatly improved under a policy that provides comparable support for all its functions, whether it be teaching or research. Present policies have made the support of the veterinary medical faculty almost entirely dependent upon publication production and research accomplishments. The unilateral support of one function over the other develops a lopsided and uncompromising situation in our teaching and research programs. Since it is necessary to be practical and pragmatic in achieving a so-called academic balance of functions, it is urged that support be granted which does not distinguish between the instructional and research activities of veterinary medical colleges.

STATEMENT OF W. W. ARMISTEAD, DEAN, COLLEGE OF VETERINARY MEDICINE, MICHIGAN STATE UNIVERSITY

It is sadly paradoxical that the prospects for adequate future support of veterinary education from state sources should dim at the very time when veterinary medicine's contributions to human health and welfare are expanding at an unprecedented rate.

Since World War II, the veterinary colleges have prospered in an environment of mushrooming university growth. State legislatures, which habitually appropriate funds on an enrollment basis, have supported the universities well during this period of postwar expansion. In turn, veterinary colleges have been well treated by their parent universities, even though veterinary enrollments have grown much more slowly than has enrollment of universities at large.

Nearly all American veterinary colleges are located at large public universities where most of the college enrollment growth has been absorbed. The growing tendency of these universities to limit enrollment, plus the proliferation of two-year colleges, now are producing a leveling-off of enrollments on most of the campuses where veterinary colleges are situated. Consequently, there will be less new money available to the universities and to the veterinary college than they have become accustomed to during the past 20 years.

The veterinary colleges therefore must turn to sources other than the state legislatures for financial support to *improve* their educational and research programs and facilities. Improvement must include several features:

1. Curriculum revision to modernize the education of veterinarians for many kinds of activities unthought of when present curriculums were designed.

2. Increased and improved reserach, including more basic research for the benefit of both animals and man.

3. More comprehensive post-DVM education (something legislatures are reluctant to support), to include:

a. Formal graduate degree programs
b. Residency and specialty training programs (no sources of support exist for these at present)
c. Broader, more relevant continuing education programs

4. Expansion and modernization of facilities to accommodate further increases in enrollment and to permit the development of new areas of veterinary interest such as:

a. Laboratory animal medicine
b. Comparative animal disease research.
c. Clinical specialty training
d. Programmed, independent learning laboratories
e. Genetic and nutritional disease research
f. Modern toxicology

It is imperative that veterinary education receive increasing financial support during the next two decades because of the great and growing importance of veterinary medicine to human health and welfare. Because they must serve the 50 United States, the 18 U.S. veterinary colleges are a national resource in the truest sense. Moreover, because of America's position of political power, wealth, and food productivity, American veterinary colleges also are a powerful asset to a world growing rapidly more crowded and more hungry.

STATEMENT OF DR. MARK W. ALLAM, DEAN, SCHOOL OF VETERINARY MEDICINE, UNIVERSITY OF PENNSYLVANIA

Veterinary medicine has assumed a role of ever increasing importance in the protection of man's health by being active on several fronts. The well being of the world population depends on the availability of adequate and wholesome food supplies. Constant surveillance of the health of food producing animals and strict supervision of food products processing is a necessity. The veterinary medical profession must continue its practice of preventive medicine and epidemiological studies in the interests of controlling disease, particularly if the disease is transmissible from animal to man.

Community health today depends on cooperative action of all disciplines in the health sciences. Added financial support of our undergraduate and graduate educational programs must become avaialble if we are to continue meeting even our minimum obligations. All of us recognize that increasing obligations of any profession go hand in hand with a rising cost in meeting these obligations. It is no longer possible to provide professional medical education at the existing level of support. The spiralling costs of administering a curriculum today will, without question, result in an annual increase of $2,000 per student at least.

The faculty of the University of Pennsylvania School of Veterinary Medicine has developed a new and imaginative curriculum which would provide the student with the opportunities for self-learning and independent development. As might be expected, the improved curriculum will call for more faculty and an increase in laboratory space. However, the value of the teaching program would be so great to prompt one to say that funds must become available in support of it. We do not have the required financial support at the moment, and a realistic appraisal of the situation also leads us to ask where the funds are coming from.

In order to fulfill past, present, and particularly future obligations, veterinary medicine must move ahead, and basic improvement grants constitute one answer to the problem.

STATEMENT OF T. S. WILLIAMS, DEAN, SCHOOL OF VETERINARY MEDICINE, TUSKEGEE INSTITUTE

I am pleased to have this opportunity to make this statement before your committee on the Public Health Administration Bill in support of the inclusion of Improvement Grants for Veterinary Medicine.

I know that you have long recognized the great urgency for additional support for veterinary medicine. The present critical shortage of veterinary medical man-

power and concomitantly the dire need for adequate resources to overcome this shortage are matters of serious concern to the profession and our nation. This urgency is of critcal concern to those of us so closely associated with the education of veterinarians who will be intimately associated with our nation's total health and welfare. I know, too, that you are fully aware that, like our companion field of human medicine, there is no shortage of qualified applicants for the spaces available in our several schools of veterinary medicine in this country. It is not likely that the inadequate resources now available for the existing enrollments can be expanded to permit the increase in enrollments needed in the next decade to meet the demands for veterinary services. More alarming is the fact that the present shortage of qualified teachers for our veterinary medical programs would be even more critical in any attempt to expand rapidly to meet the need for sharply increased enrollments.

It is unfortunate, in our opinion, that so few of our citizens fully appreciate or recognize the contributions of the veterinary profession to public health. Veterinary medicine as one of the "healing arts" shares equally with others of the medical professions the responsiblity for safeguarding the health of the nation's public. Our first line responsibility is that of safeguarding the health of the nation's animal population. Apart from this primary function, the present concept of the veterinary profession places the health of every living being fully within the scope of the broad range of our several professional activities.

The full economic significance of the contributions of the veterinary profession to our nation's public health cannot be minimized. The veterinary practitioners are our first line of defense against diseases of our vital and ever expanding livestock industry. You know full well the benefits which have accrued as a result of the cooperative efforts of veterinarians in both Federal and State Governmental service in the control of livestock diseases which are constant threats, not only to our livestock industry, but to the public health as well. Veterinary medical research singly or, as is often the case, in concert with allied medical scientists has been, and continues to be a significant part of research in problems of human health. In our own research laboratories here at Tuskegee Institute our research scientists are now working on problems of significant importance to human health. The veterinary colleges, since they are the source of veterinarians, are in a most important position to further these contributions to the eventual solutions of disease problems of animals and man. Our full potential is only limited by inadequate resources to do this significant work.

All of our veterinary schools are faced with almost insurmountable financial problems as they endeavor to meet the challenges and demands placed on them as sources of the vitally needed veterinary personnel. We are particularly grateful for the assistance provided by Congress in the form of the Health Professions Educational Assistance Act which provides for Veterinary Educational Facilities Construction and Student Loans, but strong effort is now needed to provide basic operational fund assistance. Our own position, since we are located at a private institution, is stringently acute. We are being hard-pressed to provide justification to our administration for the excessive expenditures required to endeavor to keep abreast at the current level. Plainly stated, unless we can find a new source of financial resources we may not be able to continue as a source for veterinary education.

The Basic Improvement Grants not now included for veterinary medicine would materially assist us in this financial crisis. Veterinary schools, since there are now only 18 in the country, constitute national resources, not local, state or regional, but vital national resources for needed health professional personnel. As such they merit national support; inclusion of the basic improvement grant would be a step by this Congress in the direction of assuming its rightful obligation to the veterinary profession. Our own school is now trying to operate at a level that is 50% of the median operating cost for the schools in this country. This is truly an impossible situation. We must have assistance if we are to survive. It is interesting to note that in the last data available on comparative operating costs for colleges of veterinary medicine, at least seven of the 18 schools are operating at a level considerably below what would be considered a median operating level. This, gentlemen, indicates a critical financial picture for these vital educational institutions.

It has been said that the "half life" of a veterinary education is quite short; that so much of what we teach and what students learn is obsolete in a very brief period. This means that we must be ever alert to the changing needs for our

curriculum. All of the veterinary schools must then constantly engage in the new curriculum development to endeavor to provide the most effective education for our students. Equally we must make a strong effort to provide continuing education for those already graduated to compensate for the short "half life" of their education. Simply put, then, our veterinary schools have an almost impossible task ahead in the face of inadequate resources of veterinary medical manpower and funds to do the multiplicity of responsibilities that are ours.

We urge your favorable consideration of our request to restore to the proposed legislation Basic Improvement Grants for Veterinary Medicine. Tuskegee Institute strongly supports the inclusion and urgently needs your assistance.

STATEMENT OF JAMES E. GREENE, D.V.M., DEAN, SCHOOL OF VETERINARY MEDICINE, AUBURN UNIVERSITY

I am Dr. James E. Greene, dean of the school of veterinary medicine at Auburn University, Alabama, and a member of the Executive Board of the American Veterinary Medical Association. It is the wish of the American Veterinary Medical Association to express strong support for the passage of H.R. 15757 introduced by Rep. Staggers, and entitled "Medical Manpower Act of 1968." In expressing our support for the Act, however, we urge the Committee to amend the bill to include veterinary medical colleges under the provision authorizing institutional grants for the operation of health professions schools.

Such an amendment would assure that the Act will serve to the fullest possible extent the nation's growing needs for health services. The numerous responsibilities modern veterinary medicine has assumed in the areas of biomedical research and public health require long-range funding for research, instructional programs, and efficient administration in colleges of veterinary medicine. The colleges of veterinary medicine, in common with the colleges of medicine, dentistry, osteopathy, optometry, and podiatry, need assistance in the over-all administration of expanding educational programs.

Veterinary medicine is a health profession concerned with the health and welfare of animals and man alike. Not only are veterinarians actively engaged in diagnosis, treatment and control of a broad spectrum of diseases among many species of animals, but they are also key members in the nation's medical, public health, research, and military teams.

Veterinarians are responsible for protecting a $41 billion national investment in livestock. They protect the health of the public against some 100 diseases transmissible to man from both farm and companion animals, and they safeguard the wholesomeness of meat and meat products, poultry, and milk and milk products. At U.S. ports of entry they prevent the introduction of animal diseases from foreign countries and enforce health regulations in inter-state and intrastate traffic in animals and animal products.

At numerous research institutions, both governmental and private, veterinarians contribute to the advances in bio-medical and comparative medical research. They are engaged in the care of experimental animals used in medical research and are responsible for the interpretation and application to man of findings obtained from animal research studies. They also participate in the development and testing of biological products for both animals and man.

Veterinarians in the Armed Forces serve as public health officials for troops at home and overseas. They supervise inspection of food prepared and served to troops at home and abroad, and are engaged in research studies of bacteriological warfare, effects of excessive radiation and radioactive fallout, effects of space flight on living beings, diet development for astronauts, and space food packaging.

Veterinary medicine is a decidedly consumer-oriented health profession. In 1966, Congress passed the Laboratory Animal Welfare Act (Public Law 89–544) and in 1967, the Wholesome Meat Act (Public Law 90–201). Now the 90th Congress is considering bills pertaining to the inspection of poultry and poultry meat products.

The implementation of all of these legislative measures, in their initial stages alone, will require the participation of hundreds of veterinarians, placing additional heavy demands on veterinary medical manpower at a time when there exists already a critical shortage of veterinarians in all fields.

In 1961 the Senate Committee on Government Operations estimated that the nation faces a shortage of 15,000 veterinarians by 1980 when 44,000 veterinari-

ans—nearly twice the number of today's veterinarians—will be needed to provide for minimum veterinary manpower needs. In view of mounting population pressures, the increasing need for consumer protection, the accelerated pace of bio-medical research, and the spectre of food shortages in our time, this estimate must now be considered extremely conservative.

The gigantic task of supplying sufficient numbers of competent veterinarians for the nation's growing health needs is the responsibility of 18 colleges of veterinary medicine in 17 states. These colleges are often understaffed, many lack modern teaching and training aids, most are overcrowded, some operate in nearly obsolete facilities. Because of all of these inadequacies, they now have to turn away from three to four qualified applicants for each freshman student they admit.

It has been clearly demonstrated that the states are unable to furnish the colleges with the support they need. The American Veterinary Medical Association therefore urges passage of the Health Manpower Act of 1968, together with an amendment to include colleges of veterinary medicine in the institutional grants provision.

STATEMENT OF DR. B. W. KINGREY, DEAN, SCHOOL OF VETERINARY MEDICINE, UNIVERSITY OF MISSOURI

One of the major developments during the past few years has been the unexpectedly heavy pressures on the veterinary medical profession to share the responsibilities of public health. This is first apparent on the university campuses where medical school faculty and veterinary medical faculty share the teaching of series of courses concerned with public health. At the University of Missouri there are eight faculty members from the School of Medicine with joint appointment on the veterinary medical faculty. The same number of veterinarians share appointments in the School of Medicine. The arrangement is effective and shares the load with maximum benefit to medical students, veterinary medical students and graduate students.

One of the major factors in the current advance of human health students during recent years has been the utilization of the living larger animals as models for the human in research. The pig alone has been utilized for the development of a long list of effective treatments. Each of many animal species have certain features that closely parallel the human. Thus members of the animal kingdom may be selected to form a battery that, in the composite, nearly duplicate the human. In the work utilizing animals to solve human health problems we find the veterinarian and the physician working in collaboration. This is a most rewarding and logical approach. However, the number of veterinarians required for participation in comparative medical research is depleting veterinary medical manpower in the more traditional areas.

The School of Veterinary Medicine at the University of Missouri has as the major and unyielding financial problem the lack of funds for facility construction. In the competition for building dollars the sheer increase in student numbers causes the construction of additional classrooms to be highest on priority of construction programs. The demand by society for the annual graduation of more veterinarians is well documented. However, during the past 20 years the nation has responded by creating only one new college of veterinary medicine. This places great pressure on existing schools to expand their enrollments. Because veterinary medical facilities are expensive and because of the truly regional and national nature of the veterinary medical institutions it is a serious problem to find adequate funding for the construction of additional buildings to respond to the needs and demands of the nation.

Pressure on existing facilities are also exaggerated by the mounting number of veterinarians seeking graduate training as well as the very real need for expansion of instruction through continuing education. On the University of Missouri campus alone the number of doctors of veterinary medicine pursuing advanced degrees increased from four in 1964 to 59 in 1967. Obviously facility construction must appear as an essential response to such responsibilities.

At the University of Missouri support through operational funds has been increased rapidly. The existing space has been equipped, staffed and supported to the maximum. Should additional space be made available the major operational needs would be for modern teaching devices, suitable support for outstanding faculty and for the support of auxiliary staff.

Curriculum developments in the schools of veterinary medicine have been slow in their response to a changed environment. There is now a real need for substantial studies of the veterinarians' activity and the identification and characterization of trends to enable present curriculums to be wisely remodeled.

Mr. ROGERS. What amendments do you recommend now? You said to include the colleges.

Dr. THORP. To include veterinary medicine in the institutional grants.

Mr. ROGERS. That is your basic recommendation.

Dr. THORP. Yes. I should like to at this time refer to the testimony that Dr. Martin gave yesterday in relation to medicine and dentistry, and I have discussed this with him, relative to the shortage of physicians and dentists. He pointed out in his statement that in the case of medicine and dentistry, this was an area in which there was not an opportunity for students to get in, not the academic opportunity, and so far as they knew, it was not so in other areas.

I will just point out that the same thing is true in veterinary medicine and I will use Minnesota as an example. We have 215 applicants for a class of 60 in the fall of 1968. Many of these are from Minnesota, many of them are from North and South Dakota and Wisconsin.

I would also like to further point out in relation to the testimony yesterday that the cost of educating a veterinarian is essentially the same as the cost of educating a physician and in some cases more.

Mr. ROGERS. How many years are required?

Dr. THORP. Four years beyond the 2 years of preveterinary work. Two years is a minimum. Most of our graduates have about 7 years.

I want to say also that there are many areas in veterinary medicine in which the facilities and equipment are the same as the other medical sciences. As shown in the prepared testimony which you will put in the record, the schools and colleges of veterinary medicine are really a national resource since there are only 18 in this country. There are many well-qualified motivated pre-veterinary students who cannot secure entrance and avail themslves of this educational opportunity.

In closing my brief summary, we appreciate the assistance which the Congress and the administration have provided for the construction of teaching facilities and student loans, inclusion of scholarship grants, special project grants, in the present legislation. These will be most helpful in assisting the colleges to expand and meet the increasing demands for veterinarians as part of the health manpower team. We do, however, wish to be included in the institutional grant.

Thank you very much for letting me appear today. I will be glad to answer some questions after the other gentlemen who are with me—I would like to call on Dr. Pritchard now.

Mr. ROGERS. All right.

STATEMENT OF DR. W. R. PRITCHARD, DEAN, SCHOOL OF VETERINARY MEDICINE, UNIVERSITY OF CALIFORNIA, DAVIS, CALIF.

Dr. PRITCHARD. Mr. Chairman, Congressman Skubitz, I would like to make only two points and will be very brief. I have a prepared statement that I would like to have introduced in the record.

Mr. ROGERS. Without objection, it will be made part of the record following your oral presentation.

Dr. PRITCHARD. The veterinarian is the member of the health team that deals with diseases of all kinds of animals except people, and in this way he makes significant contributions to human health, and I want to point out one quite unique way that this is done.

As you know, a great deal of research on human diseases must be done with animals. This is fine and it presents no problems if the disease can be reproduced in animals. However, there are hundreds of diseases, particularly the chronic and debilitating diseases, that cannot be reproduced, so there is no way to do research on causes, mechanisms by which the disease is produced, or prevention unless people are used.

It is becoming increasingly clear however that most if not all of these diseases occur naturally in some animal species. Consequently the veterinarian in his daily work, whether it be with livestock, pets, zoo animals, laboratory animals or any other kind of animal, is in a position to locate for medical science these animal disease models that are so important for medical research. And I emphasize that he does this in his daily activity as a veterinarian.

I would like to mention very briefly one or two of these models that are being used at our school. The first one is pulmonary emphysema, which is one of the most important diseases of people today. In fact I believe one out of every 14 people on social security disability payments actually have emphysema. Fortunately, this disease also occurs in horses, and veterinarians working in our school have learned a lot about the mechanisms by which this disease is produced in horses, have been able to reproduce it, and are now using the horse on studies on the cause of emphysema. They actually house groups of horses and also monkeys in large buildings and are studying the effects of air pollutants, such as ozone, on lungs and determining how these materials cause emphysema.

Another good example is leukemia. Leukemia is a commonly occurring and highly fatal disease of people; but fortunately it also occurs in a number of animal species. Just about everything we know about the cause of leukemia has come from studies on mice, cattle, dogs, and cats. Very recently some real progress was made in understanding leukemia as a result of studies in the cat. The first cat studied was brought to the veterinary medical teaching hospital by a practicing veterinarian that had recognized that the cat had leukemia. Researchers collected plasma from the cat, spun it at very high speeds; and, lo and behold, under the electron microscope, there were millions of viral particles. For the first time they were able to concentrate large quantities of leukemia virus and now are making major strides in certain aspects of studies on leukemia. This progress stemmed directly from the efforts of a pet animal practitioner who indirectly was able to make a significant contribution to medical science because he knew how to recognize leukemia and recognized the importance of his patient to send it to the university for further study.

Now, there are many, many other similar examples, but it is not really necessary in view of the shortage of time, to go into them. I passed out some pictures. You see Burkitt lymphoma and bovine lymphosarcoma are very similar diseases in man and animals. I also have a picture of some sheep with a genetic defect and a lady that is not ill but who carries the defective gene for this disease. The disease, Dubin-Johnson syndrome, an important disease of children is identi-

cal in sheep and people. Sheep are excellent models in which to study the disease. Some of the finest work in the country is being conducted at School of Veterinary Medicine at Kansas State University on this and similar diseases by Dean C. E. Cornelius and his group. This is a very important problem in babies.

Mr. SKUBITZ. I am glad you mentioned that.

Mr. Chairman, I would like to ask unanimous consent to insert a statement by Dr. Cornelius into the record.

Mr. ROGERS. Without objection, it will be made a part of the record at this point.

(The statement referred to follows:)

STATEMENT OF DR. C. E. CORNELIUS, DEAN, COLLEGE OF VETERINARY MEDICINE, KANSAS STATE UNIVERSITY

The many contributions of veterinary medicine to human health have become nationally acknowledged as classical discoveries important to understanding human disease. The discovery of numerous nutritional deficiency diseases, the development of advanced surgical techniques including organ transplants, the testing of many new drugs beneficial to man, the discovery of animal models in which to study human disease, and the control of over 150 animal diseases transmissible to man, are but a few of the important responsibilities of veterinary medicine. It has been said that the greatest contribution of veterinary medicine in the next decade will be what basic information flows to human medicine concerning the many animal diseases with counterparts in man. We need to discover new animal models for studying cystic fibrosis, the rejection of organ transplants, multiple sclerosis, emphysema in the over populated city, a variety of leukemias, many types of cancer, and coronary heart disease to mention only a few. Through the use of such animal models, key discoveries can be made in colleges of veterinary medicine and in cooperation with leading human medical centers. We must not let this golden opportunity be missed due to insufficient funding of the few colleges of veterinary medicine that exist in the United States today.

There is insufficient resources in colleges of veterinary medicine today to stimulate such programs as mentioned above in comparative medicine unless basic improvement grants are made available. This is due to the great expense of medical education and research today. Colleges of veterinary medicine are presently faced with a lack of resources for the training of students in comparative medicine. The serious deficiency of qualified scientists in this field of comparative medicine is appalling. In addition, poor physical facilities in many veterinary medical colleges limits research programs which are directly related to human health. Basic improvement grants to veterinary medical colleges along with the support of improved teaching and research facilities is the only answer that will allow for the training of these new medical scientists. They will be unique to all of medicine.

Many veterinary medical colleges in certain smaller states receive state support at only 1.5–2 million dollars per year. They will be unable to develop meaningful training and research programs in comparative medicine during the next decade unless institutional grants of $300,000 to $500,000 per year are available from resources outside the state.

The injection of many new discoveries on animal diseases from veterinary medicine into human medicine could well be the key to understanding many of our worst crippling diseases in man. I strongly urge that the new programs recently initiated in developing new veterinary medical manpower for the health sciences as well as increased institutional support be continued; only by such a program can the colleges of veterinary medicine make a substantial contribution to the health of mankind.

Dr. PRITCHARD. I would like to make one other point relating to demand for veterinarians. Each year 3,000 to 5,000 letters are written to us by people interested in a veterinary medical education. About 400 to 450 qualified applicants apply for admission to the school each year; we are able to accept only 80. Last year these 80 students

averaged 4.2 years of pre-veterinary medicine obtained at some of our Nation's finest colleges and universities with better than B averages. They are indeed an outstanding group of young people desiring to enter the profession of veterinary medicine.

Lack of spaces for the 250 to 300 is not really the point I want to make. The important issue is, what happens to some of the other 3,000 to 5,000 that do not finally complete their applications for the school? We have looked into this matter, and we find that too many do not enter veterinary school because they cannot afford the long and expensive education required to qualify as a veterinarian. We are getting very few people from the lower income groups because veterinary medical education is expensive and these people just cannot afford it. Consequently, if it were possible for anyone to go to veterinary school regardless of cost, I am sure the number of applications would be greatly increased. Even though five times as many applications as places for students is bad enough, it could be much worse if potential applicants from enough low-income groups were included.

Thank you very much.

Mr. ROGERS. Thank you very much, Dr. Pritchard; appreciate it.

(Dr. Pritchard's prepared statement follows:)

STATEMENT OF DR. W. R. PRITCHARD, D.V.M., DEAN, SCHOOL OF VETERINARY MEDICINE, UNIVERSITY OF CALIFORNIA, DAVIS, CALIF.

I am Dr. W. R. Pritchard, D.V.M., Dean, School of Veterinary Medicine, University of California, Davis. I would like to make a statement about some contributions of veterinary medical science to human health and welfare, and comment on the critical financial problems facing American colleges and schools of veterinary medicine. I am sure that others will comment on many additional ways veterinarians contribute to human health and welfare.

Veterinary medicine has evolved as that branch of medical science responsible for the control of diseases of all species of animals except man. The D.V.M. applies the principles of biology and medicine to the alleviation of pain, suffering and ill health in animals serving man. He is responsible, too, for the protection of people from those animal diseases that also affect man. Most importantly of all, however, veterinary medicine makes highly significant contributions to the health and welfare of people through research by adding to our knowledge of diseases and disease processes. I shall try to briefly describe some of the unique ways that veterinary medical science contributes to human health.

A RICH HISTORY OF RESEARCH ACCOMPLISHMENTS

Since the time of Pasteur, veterinary medical scientists have made significant contributions to the body of knowledge that constitutes medical science. I shall cite only a few examples typical of many hundreds made by veterinarians.

Smith, Kilbourne and Curtice, seeking means to control Texas fever of cattle, a disease threatening the cattle industry of this nation in the latter 1800's, discovered that arthropods, in the case of Texas fever a tick, are capable of spreading disease. This finding has proven to be one of the most important principles of infectious disease control. It has led to successful control of many important arthropod-borne diseases of people such as malaria, yellow fever, sleeping sickness, Chagas' disease, and numerous encephalitides.

A French veterinarian, Ramon, working on ways to protect French cavalry horses from lockjaw, developed the first effective immunization agent against a toxin. Successful methods of preventing tetanus, diphtheria and other diseases induced by toxins in people resulted from his work.

Karl F. Meyer, D.V.M. of the University of California, devised means to control botulism in canned foods, making the great food canning industry possible at a very critical time in its history.

William Feldman, D.V.M., formerly of the Mayo Foundation and now the U.S. Veterans Administration, more than anyone else is responsible for emptying the nation's tuberculosis sanitariums of patients formerly doomed to something

akin to life imprisonment. This veterinarian brought to the human medical community the methods successfully used to control T.B. in cattle and, in addition, led the nation in research which resulted in the successful treatment of this disease.

Otto Stader, D.V.M., a practicing veterinarian specializing in pets, developed a revolutionary method of reducing fractures in animals. Many Americans, particularly former World War II servicemen, owe their arms, legs, jaws and other bones to the Stader splint, which in its time was an important contribution to fracture repair.

The use of oral polio vaccine was backed by nearly 15 years of experience with the successful use of oral vaccines in animals.

These are only a few of hundreds of examples of ways the health and welfare of people have benefited by veterinary research.

ANIMAL DISEASE MODELS OF DISEASES OF PEOPLE

It is becoming apparent that for nearly every disease of people there is a similar or identical disease in some species of animal. The animal may be a dog, cat, mouse, horse, rabbit, turkey, chicken, sheep, cow, deer, primate or even a fish. Many of these animal disease models are far better suited for studies on the nature of a disease and means to prevent or treat it than are sick people. Hence, research on these diseases contributes directly to the health of people by increasing our understanding of diseases and disease processes in man.

Animal disease models of diseases of people are becoming increasingly important to medical research. Chronic and degenerative diseases such as cancer, stroke, heart disease and emphysema have become the chief killers and disablers of the American people. Unfortunately, there is no adequate way to reproduce many of these diseases in animals for study. On the other hand, many of them occur under natural conditions in lower animals, hence veterinarians have a unique opportunity to provide medical science with models of these diseases for research. A veterinarian's training and experience with the biology and diseases of these animals make him especially qualified to conduct research on the principles of disease and disease processes with these models.

EXAMPLES OF USEFUL ANIMAL DISEASE MODELS FROM THE U. C. SCHOOL OF VETERINARY MEDICINE

Veterinarians from the Western United States refer livestock, zoo, wild and fur-bearing animals, laboratory animals and pets with unusual diseases to our School's Veterinary Medical Teaching Hospital for intensive study. Many of these diseases are models of diseases of people, with valuable research potential. Hence, a veterinary school serves as an effective screening mechanism to discover and characterize models of disease in all kinds of animals that might be valuable research tools.

Members of the faculty of our School have discovered or made significant contributions to the understanding of over 40 animal disease models of important diseases of people. I would like to briefly describe three of them.

Emphysema.—Emphysema is a severe, progressively disabling disease of people. The prevalence rate is high in the United States and is increasing rapidly. In a recent year one of every 14 citizens receiving total disability payments from social security had emphysema. A similar disease also occurs in horses. A team of researchers composed of D.V.M.'s, M.D.'s and other health scientists initiated studies on emphysema in the horse in our School 6 years ago. This team has succeeded in reproducing emphysema in the horse; thus, for the first time, medical science has been provided with an experimental system in which to study cause, prevention and treatment of emphysema. The group, headed by Dr. Walter Tyler of the School of Veterinary Medicine, now is determining the role of air pollutants and other agents as possible causative factors of emphysema. Their results will be more important to human than to animal health.

This important progress was made possible only because a veterinary and human medical research team together attacked an important human health problem.

Leukemia.—Leukemia is one of man's most feared diseases. How would any of us react to the knowledge that one of our loved ones had this highly fatal disease? How many people know that nearly everything known about the cause, spread and possible means of prevention of leukemia has been learned from studies on leukemia in animals. The most promising research on leukemia in the world

today is being conducted on naturally occurring disease in mice, cattle, cats and dogs. We know that leukemia in the mouse is caused by a virus and have obtained excellent leads on how it is spread in cattle.

Where would we be in leukemia research today but for these animal disease models? We probably would not have the foggiest notion of the nature of the disease and, indeed, might not have much of an idea about how to find out.

If leukemia is ever brought under control, and we are confident that it will be, much will be owed to the animal disease researchers who discovered the models and have conducted research on them.

Liver Disease in Man and Sheep.—Exciting progress is being made in understanding perplexing liver diseases of people as a result of the discovery by veterinarians in sheep of two diseases caused by liver function defects. One of these liver diseases in sheep is identical to Dubin-Johnson syndrome in man. Together they have provided medical science with its best "models" for understanding liver function in health and disease. Both veterinary and human medical researchers are using these sheep for important research on liver disease in people.

FINANCIAL CRISIS IN VETERINARY EDUCATION

America's schools and colleges of veterinary medicine face their most serious financial crisis in the long history of veterinary medical education. Because veterinary medical education must be offered at the graduate level and requires intensive instruction in the basic clinical and medical sciences, as well as a great deal of contact with animals, the cost is very high. Data obtained from the University of California indicate that the cost of veterinary medical education exceeds that of most medical schools. The reasons are clear. Instruction in veterinary medicine is at the same high academic plane as it is in human medicine. The students have completed at least in our School, over 4 years of preveterinary medicine in strong schools and colleges. They enter our veterinary medical school with an average of more than a "B" obtained in some of the nation's top colleges and universities. The course of study is very similar to that in a human medical school, except that all aspects of the program emphasize, in their laboratory and clinical portions, more contact with animals because the animal—not man—will be the patient of the veterinarian. Consequently, more time must be devoted to animal aspects of laboratory exercises in anatomy, physiology, surgery, obstetrics and similar courses, than in human medical schools. This increases educational costs fantastically because animals used in veterinary medical programs, including those in anatomy, must be purchased and are not donated to veterinary schools as they are to most human medical schools.

Adequate clinical instruction requires an abundance of animal patients for study. Unlike human hospitals, many of these patients must be admitted and cared for at a cost less than the real cost of the services rendered to the patient. This is true because the fee that can be charged is limited by economic factors and no medical insurance exists for animals. The cost of care is far greater than in private animal hospitals because they are used for teaching. Consequently, clinical education, by and large, costs a great deal and the activities of the veterinary clinician do not result in earning money for the veterinary medical program, as is the case in many human medical schools.

The cost of operating a veterinary medical school amounts to approximately $7500 per professional student per year. The cost of educating an undergraduate student is far less than this. Consequently, legislators and university administrators are sometimes unable to allocate sufficient funds to veterinary medical programs when the demand for educating large numbers of students cannot be adequately met. The problem is accentuated by the fact that since there are only 18 veterinary medical schools in the country, a significant number of students in all schools of veterinary medicine come from out of the state that supports a veterinary medical school. Consequently, legislators are reluctant to spend the required funds to adequately support a veterinary medical program. They reason that because a few states must educate all of the veterinarians for the entire United States, federal funds should be made available to assist in supporting veterinary medical educational programs. Their reasoning is hard to refute.

In my opinion, if veterinary medical schools are to meet their commitment to supply badly needed veterinarians for all types of service to society, at least 50 percent of the total costs of veterinary medical education must come from other than state sources. For our School this would amount to approximately $3,750 per student per year.

DEVELOPMENTS IN THE CURRICULUMS OF SCHOOLS OF VETERINARY MEDICINE

Schools of veterinary medicine throughout the nation currently are conducting searching examinations of their teaching programs. Teaching and learning in these schools is being scrutinized in greater detail than at any other period in the history of veterinary medical education. Good teaching is acquiring new respectability and, in turn, faculty interest in excellence in teaching has increased a great deal.

New curriculums are being developed by most schools of veterinary medicine throughout the nation. Our School adopted a new curriculum in 1966 designed to better prepare graduates to fulfill the needs of the profession as the medical specialist who deals with diseases in all species of animals. We have concentrated on providing a fundamental education on the biology and disease of all kinds of animals to make it easier for veterinarians to adapt to the constantly changing nature of the profession. It also will better prepare them for the life-long learning that is absolutely essential in order to keep up with developments in the profession.

Veterinary medical educational programs already firmly established at the graduate level are providing opportunities for the first time for graduates to concentrate in certain disciplines, and hence acquire greater depth of knowledge in certain aspects of veterinary medical science. More responsibility is being placed upon the student in the learning process. More time is being made available for self-learning activities, such as library study, work in instructional resources centers, more clinical study and more thorough work-up of cases, individual research projects and other similar types of self-study programs. A greater proportion of the class time is being devoted to discussions, seminars, workshops and problem-solving exercises rather than to lectures on materials that, in many instances, could be better obtained from textbooks, journals and other sources.

One of the most important changes in veterinary medical curriculums is the effort to condition the graduate for lifelong learning. The D.V.M. can hope to obtain little more than an understanding of biology and diseases of animals and an introduction to clinical veterinary medical science while in school. The rest he must learn after graduation. Hence, one of the most important aspects of his education should be the attainment of proficiency in the skills of self-learning, the methods of finding answers, the techniques of problem-solving, and the motivation to continue to grow professionally for the remainder of his life. The incorporation of more self-learning techniques in the veterinary medical curriculums should assist in developing habits that will lead to successful lifelong learning. It must be remembered that all of these innovations increase the cost of education.

Educational Resources

Many veterinary medical schools are beginning to incorporate in their teaching programs more of the important advances that have been made in the science and technology of education during the past few years. Programmed learning, new audio-visual techniques, greater use of models, computer-assisted educational programs and other innovations are being used to an ever increasing extent to improve the efficiency and quality of the veterinary medical educational process. Several schools are planning the development of medical education departments. Some are being developed in cooperation with schools of human medicine. It is the avowed intention of the Association of American Veterinary Medical Colleges and the Council on Education of the American Veterinary Medical Association to constantly improve the educational program of the U.S. Schools of veterinary medicine. Symposia and seminars on veterinary medical education are being held throughout the country in ever increasing numbers. This intense interest in the improvement of veterinary medical education is one of the most refreshing developments in veterinary medical schools that has occurred in the last half century.

SUMMARY

In summary, veterinary medicine has made and will continue to make important contributions to the advancement of biomedical science. New knowledge about animal biology, diseases and disease processes is being obtained as a result of research being carried out in veterinary medical institutions. Studies on animal diseases that are similar to afflictions of people provide a highly unique

mechanism by which important information on the cause, control and treatment of diseases of people can be made.

Veterinary medical educational programs are as costly, or more costly, than human medical programs because many more animals are required in the teaching program of veterinary medicine and veterinary medical teaching hospitals do not earn incomes proportionate to human medical hospitals. Schools of veterinary medicine are experiencing considerable difficulty in obtaining adequate state support because only 18 American veterinary schools serve the needs of the entire nation. Many states resent the expenditure of their own funds for educational programs that benefit other states.

Great strides are being made in the improvement of veterinary medical educational programs. New approaches to teaching and learning and research on medical education are being developed. The application of the latest advances in educational science is being incorporated into the teaching programs of most veterinary medical schools.

Mr. ROGERS. Dr. Morse.

STATEMENT OF DR. ERSKINE V. MORSE, D.V.M., DEAN, SCHOOL OF VETERINARY SCIENCE AND MEDICINE, PURDUE UNIVERSITY

Dr. MORSE. Mr. Chairman, with your permission I would like to have my statement introduced into the record.

Mr. ROGERS. Without objection, it will be made a part of the record following your oral presentation.

Dr. MORSE. Mr. Chairman, Congressman Skubitz, I would like to discuss the contributions of veterinary medicine in food production and in consumer protection.

Our country has a tremendous obligation as a world leader and is probably the prime producer of animal food products in the world today. Approximately 10,000 die each day and 3 million a year due to starvation.

It is quite interesting just to show the great need for animal protein. Cannibalism in the Caribbean was greatly reduced with the importation of Spanish cattle. Only 2 percent of our world, though, is ideally suited for production of crops. This means 64 percent of our land mass is in permanent pasture. It is because of ruminants, i.e., cattle, sheep, and goats that man can live in a great deal of our world. These animals convert unpalatable roughages into highly palatable meat for human consumption. Eighty percent of the meat and milk and eggs are produced by 40 percent of the world's livestock. It is no accident the United States is a leader in food production and a great deal of this has been brought about by first-rate research in genetics, husbandry, and disease control and prevention.

We also have a marvelous system of surveillance, keeping disease out. We have all heard about the foot and mouth epidemic in Great Britain in which 415,000 cattle were killed because they were infected or exposed. If this same disease were to infect our cattle, we would lost 25 percent of our total cattle.

Another disease, rinderpest or cattle plague, is fortunately not with us. In the 18th century, in Europe alone, 200 million cattle succumbed to rinderpest. In the 20th century through World War II, over 2 million cattle died annually in the Far East before the plague was brought under control by veterinarians.

Essentially veterinary medicine and veterinarians are a minority group. There are only 25,000 of us. We do need help to continue these good efforts and to protect our food supply.

I would say we will need 15,000 more veterinarians by 1980 to continue the good level of service which we are currently providing. Obviously more research is needed, better diagnostic methods, worldwide reporting on animal diseases to protect our own animals and, of course, exportation of technical know-how to the developing countries are necessities.

Consumer protection—Secretary Philip Lee commented briefly on this yesterday, I am sure. There are 135 diseases of animals directly transmissible to man. There are a number of human infections which are transmitted by contaminated food between human beings.

We have the problem of chemical residues and pesticides in our meat and food products. There is the need for better plant and sanitation inspection of food processing establishments. Veterinary protection really starts for the consumer on the farm where the animals are kept healthy. This means wholesome meat, eggs, and milk. Veterinary surveillance continues in transit, prior to slaughter, following slaughter in the processing plant, and through the whole processing and storage operation.

We can look with pride to our U.S. Army and U.S. Air Force Veterinary Corps officers. Our schools are supplying a large number of these officers every year. Twenty-five percent of our 1968 graduating class at Purdue will be on active duty by September. All the food is inspected by the veterinary corps for all branches of the service.

The 18 U.S. veterinary medical colleges graduate the doctors of veterinary medicine (D.V.M.'s) which have enabled our country to produce ample as well as the safest meat, milk, and eggs. This legislation will greatly assist these colleges to supply the needed professionals to continue this fine service to producers and consumers alike.

It is a pleasure to appear before you, gentlemen. Thank you very much.

(Dr. Morse's prepared statement follows:)

STATEMENT OF DR. ERSKINE V. MORSE, D.V.M., DEAN, SCHOOL OF VETERINARY SCIENCE AND MEDICINE, PURDUE UNIVERSITY

FOOD PRODUCTION

The prospect of peace between nations of the world and the prospect of civil tranquility within our own nation are closely related to a most powerful freedom—freedom from hunger for all people. Wars and civil strife may be caused by factors other than hunger, but where there is starvation there can be no peace.

During the past five years, the population of Asia is reported to have risen 12% and in Latin America 17%. Food production in these two vast areas has increased 10% during the same period. The net result is that per capita food production has fallen 3% in Asia and 7% in Latin America.

Two-thirds of the world population lives in food deficit areas, and 60% of these people suffer from malnutrition or diseases aggravated by malnutrition. Only 10 countries of the world have food surpluses and they contain only 15% of the world population. Hunger claims 3 million lives each year, and 50% of the population in many developing countries die before the age of 15 years is reached.

Plants provide the world with 70% of the available dietary protein and 30% comes from animal sources. While both of these sources are important to human nutritional needs, animal products are superior in protein quality and require less bulk consumption per unit of protein intake.

The North American's daily diet includes an average of 66 grams of animal protein. In Africa only 11 grams are available and in Asia the figure is 8 grams per day.

Why is America so far ahead of many areas of the world in available animal protein foods? The answer must include the investments which America has

made to create a great reservoir of veterinary medical knowledge and manpower.

Dr. M. R. Clarkson, Executive Secretary of the American Veterinary Medical Association, said in a public symposium of the National Research Council of the National Academy of Sciences last June:

"On the whole . . . world animal agriculture today presents a vast potential for the production of foods, sufficiently large to satisfy the world's need for animal proteins of high quality. Without in any way underestimating the economic, ecologic, and logistic factors adversely affecting the utilization of this potential, particularly in the developing countries, I suggest that the greatest single obstacle to meeting the world's requirements for food products of animal origin is the crippling and unnecessary drain incessantly inflicted upon these resources by major infectious and parasitic animal diseases. Adequate disease control is the first and fundamental 'must' in successful meat, milk, and egg production."

A statement by the National Academy of Science last year spoke to the essentiality of veterinary medical services when it said:

"That animal diseases are economically crippling is clearly evident. That they are unnecessary has been amply illustrated wherever the introduction of veterinary medical service has led to the control of once rampant animals diseases . . . . Faced with the two-pronged task of feeding its own growing population, and rendering aid to those struggling desperately for the basic necessities of life, the United States can no longer afford any delay in opening up to its fullest a source of food unequalled by any other reservoir of life-sustaining substance . . . . The National Academy of Science calls upon and urgently requests the Federal government and the scientific community in every stratum of its endeavors to join hands in establishing, developing, and supporting accelerated national and international programs aimed at the control and eradication of animal diseases."

Annual savings resulting from the elimination of bovine piroplasmosis (Texas fever) from the United States equal the total cost of its eradication. The control of bovine tuberculosis provides a monetary savings every two years equal to the cost of the control program. Although individually less spectacular, there are a host of more insidious, yet debilitating, animal health and parasite problems which collectively are such costly handicaps to efficient, productive, and profitable livestock production that the United States can no longer afford to delay their control.

The costs of animal diseases vary from 15% of potential animal yield in the developed countries to as high as 50% in some of the developing countries. These great losses have been endured through the ages, but there is now a new and pressing urgency to limit this unnecessary toll. The world has now undergone great and unprecedented changes which require more effective disease control if the livestock industry is to thrive and fulfill its potential in the production of food for man.

America is the safest place in the world in which to invest in and produce livestock products. We have a veterinary medical profession in this country which is unexcelled anywhere in all of history. Yet, in the United States alone, we sacrifice to animal diseases and parasites a staggering 2¾ billion dollars worth of animal products each year.

A United States population of 600 million people is not going to occur overnight some 100 years from now. It will be a progressive increase which has already begun. It is not futuristic and we must begin to face it today. The gap between existing food supplies and essential food requirements is changing, and the change is not for a better fed people. We have a crucial challenge before us, one which is made sharp by physical states of desperation. The challenge is to raise the level of animal health and productivity in the United States and throughout the world to meet the essential animal protein food needs of an expanding population.

If the challenge is to be met, if hunger and starvation are to be conquered, then, increased attention must be given to the wastes of our potential food resources.

A summary of the President's Science Advisory Committee Report on The World Food Problem, released June 18, 1967, said:

"The report warns against the false hope that some 'panacea' will appear as an easy answer to worldwide food shortages and decries the publicity accorded to synthesis of food from petroleum, food from algae, and similar processes as raising false hopes and undoubtedly lessening public concern about the seriousness of the food supply in the developing nations . . ."

Five things must be accomplished in meeting the needs for animal health and in reducing the wastes of animal diseases:

1. Research on the diseases of food producing animals must be increased. There is a developing imbalance of research fund support for diseases of animals related to food production as compared to diseases of animals with direct human health implications. The latter merits support and should be continued and increased. However, if the former is not brought alongside, man can become the healthiest starving critter the world has known.

2. Veterinary medical manpower must be increased. At the fastest possible rate which can be accomplished in the most efficient of educational process, the United States will have inadequate veterinary medical manpower in 1980 with prospects of even more acute shortages beyond that point.

3. Veterinary medical diagnositic laboratories and an effective and accurate national disease reporting system must be developed and expanded. From such a network can come the data so essential in animal health management.

4. Regulatory authority must be strongly supported and new laws and regulations provided as needed to control and or eradicate existing diseases and to prevent the importance of others from which this country is now free.

5. Greater emphasis, across this nation and in foreign countries, must be applied to the problem of ineffective or negative use of currently available animal health "knowhow." Extending knowledge to the producer and continuing education for the graduate veterinarian must have high priority in the decade immediately ahead. We know how to do more than we do.

CONSUMER PROTECTION

The meat markets of this country are, for the most part, well stocked with good, wholesome meat of varieties and standards pleasing to the consumer. The customer can feel safe in his protection against transmissible diseases through his meat supply. He consumes great amounts of meat, milk, and eggs each year and is confident that his health is protected and he eats with pleasure and freedom from fear. Contrast this with the open, unrefrigerated, fly-infested and rodent-inhabited meat markets of many countries today where there is no effectively regulated meat and animal products inspection system.

Consumer protection is an unpopular and argued subject in some quarters. Why should the government protect a citizen who does not want this protection? The answer is clear. The majority of our people seek protection from that over which they have no individual control and look to collective protection through legalized governmental processes. The dissenters derive the benefits afforded the majority, and in this great land of ours, have a right to dissent. However, they do not have the right to deny the majority the collective protection it seeks.

Veterinary medicine plays a central role in consumer protection. As relates to safe and wholesome animal food products, this role extends from the healthy herd and flock through the processing plants and market place to the very hands of the consumer.

The American housewife can acquire, prepare, and serve to her family a nutritious, safe, palatable, and wholesome meal because there is surveillance by a guardian created in the due process of law. The system is costly, but in terms of consumer protection, it is one of the best and most productive of the investments Americans make.

The veterinary services of the U.S. armed forces seeks procurement and delivery of safe and wholesome food supplies to our fighting men around the world. There is no other current system by which this important job can be accomplished.

The Wholesome Meat Act of 1967, and a Poultry Inspection Act are programs aimed to secure good food for American people. They, along with the Laboratory Animal Welfare Act, require additional veterinary medical manpower.

REQUEST

The Congress is requested urgently to take the steps necessary to support and strengthen a valuable national resource—veterinary medicine in the United States of America.

The inclusion of veterinary medicine in all of the provisions of H.R. 15757 including the important institutional grant provision, and the passage of H.R. 15757 will give greater strength to veterinary medical education and make possible its meeting the challenge it seeks to deliver for all people.

Mr. ROGERS. Thank you, Dr. Morse.

Mr. Skubitz?

Mr. SKUBITZ. Doctor, did you say there were only 15,000 veterinarians in the country?

Dr. MORSE. There will be 15,000 more needed than we will currently have by 1980 and our current veterinary colleges will be unable to produce them.

Mr. SKUBITZ. Recently we passed the dirty meat bill; today we passed a filthy chicken bill.

Are the inspectors required to be graduate veterinarians?

Dr. MORSE. There are some lay inspectors, a number. Actually, they are supervised by veterinarians.

Mr. SKUBITZ. If we are going to really inspect meat and inspect chickens, shouldn't the inspectors be veterinarians?

Dr. MORSE. Ideally, yes.

Mr. SKUBITZ. Otherwise we are passing laws and we are hiring inspectors that are not competent to judge whether or not the meat is contaminated.

I think if the Congress, Mr. Chairman, is going to take steps to protect the consumer, we must secure competent inspectors.

Mr. ROGERS. Right.

Mr. SKUBITZ. That is all.

Mr. ROGERS. Would you let us have your estimate from your organization as to how many new schools might be needed or what increase can be assumed by present facilities, and should there be a requirement that the schools, if they have Federal grants, take on additional students, at about what level?

The law as we put it in some years ago, it is two and a half percent, or five students. I would hope that would be increased.

Dr. THORP. There would be no objection to a 5-or 10-percent put-in as a requirement. We see no objection to it. As far as the existing schools and existing facilities, I doubt if there could be too much of an increase without a considerable increase in numbers of faculty and facilities. Facilities are really the bottleneck as well as faculty, and to maintain faculty.

Mr. ROGERS. Of course, this bill is to get at that problem.

Dr. THORP. Yes; and in regard to new schools, there is, as you know, a new school probably developing at Gainesville, Fla., one which has been authorized by the State of Louisiana for Louisiana, and a school is being set up in Connecticut at the University of Connecticut. Tennessee is considering a school.

My estimate would be that in the next 10 years there will probably be five or six new veterinary schools in the country.

Mr. ROGERS. Will this meet the demand?

Dr. THORP. This will help meet the demand along with an expansion of the existing schools. We are at Minnesota—or the faculty is in the process, and have come to the conclusion that we are going to try to double our enrollment in the next 10 years as a gradual buildup. We are taking this into consideration, relevant to facilities that we are going to ask our legislature for, the 1969 legislature.

Mr. ROGERS. Good luck.

Dr. THORP. So we would go to 120 eventually, but the existing facilities I don't think will help us too much.

Mr. SKUBITZ. Have you had difficulty with your legislature getting money for your school of veterinary?

Dr. THORP. Well, it was started in 1947. We have been building at it piecemeal. We have come to kind of a gentlemen's agreement that about every other legislative session—they meet every 2 years in Minnesota—we are able to take a major step in our main teaching facilities.

Mr. SKUBITZ. I was shocked to learn that the school in Kansas is on probation. There is something wrong with our State legislature and I intend to find out what is going on in Kansas. We are quite proud of our school at Manhattan for years there, and I don't know what happened but our school has been placed on a probation basis.

Dr. THORP. I might point out that Dr. Pritchard is a graduate of Kansas.

Mr. SKUBITZ. Manhattan?

Dr. PRITCHARD. Yes.

If I may, I would like to comment on your question. A study was conducted about 3 years ago which indicated that in order to meet the needs for veterinarians until 1980, the enrollment at all of the present schools would have to be doubled and about six new schools created. So that is——

Mr. ROGERS. This gives us a general picture.

Dr. PRITCHARD (continuing). The scale of need.

Mr. ROGERS. I was interested in your comment, too, on the part that veterinary medicine plays in the life of our Nation. I have introduced a humane bill for laboratory animals which I hope your organization will get behind. I think it is essential for us to do that because if you have well animals, your research is going to come out better and save millions of dollars there alone. So I would hope that you would look over this legislation perhaps and give us some comments.

Dr. THORP. I might comment in that connection, the National Academy of Sciences has pointed out there are about 2,000 biomedical research laboratories in the country and we also point out that there are only 106 veterinarians that have been certified in laboratory animal medicine. This is one of the areas where there is an expanding horizon for the need for veterinarians.

Mr. ROGERS. Thank you very much.

Our last witness today is the president of the Association of University Programs in Hospital Administration, John D. Thompson. He is the president of the Department of Epidemiology and Public Health at the School of Medicine, Yale University.

STATEMENT OF JOHN D. THOMPSON, PRESIDENT, ASSOCIATION OF UNIVERSITY PROGRAMS IN HOSPITAL ADMINISTRATION; ACCOMPANIED BY GARY FILERMAN, EXECUTIVE DIRECTOR

Mr. ROGERS. It is a pleasure to have you with the committee today.

Mr. THOMPSON. Mr. Chairman, I have a not too lengthy statement, which I will ask to read into the record. I will try to be brief and as concise as possible.

Mr. ROGERS. Thank you. This will be helpful.

Mr. THOMPSON. I am John Thompson, director of the graduate program in hospital administration at Yale University. Today I am representing the Association of University Programs in Hospital Administration, which is an organization of graduate faculties working cooperatively to improve the quality, delivery, and effectiveness of health services through programs in administration at the master's degree level. I am accompanied by Gary Filerman, executive director of the association.

Mr. ROGERS. Mr. Filerman, it is a pleasure to have you before the committee.

Mr. FILERMAN. Thank you.

Mr. THOMPSON. There are 24 graduate programs in hospital and health administration in the United States. The field is a relatively new one, and is experiencing tremendous growth and viability at the present time. Most of the programs are relatively new—10 having been organized just since 1960.

There are eight more in various states of being planned and about 30 other colleges and universities are actively considering launching programs in hospital administration.

This is, incidentally, happening throughout the world. Underdeveloped countries, which have more severe health resources problems than we do, hasten to establish hospital administration programs. The growth of the programs reflects wide recognition by the public of the importance of effective, appropriately trained hospital management. Of the more than 5,000 program graduates, between 3,500 and 4,000 are estimated to be in top-management positions in hospitals and related facilities. An additional 1,000 to 1,500 occupy key positions in State health departments and Hill-Burton agencies in particular, Blue Cross and other prepayment plans, health planning organizations, and voluntary health agencies. Program graduates are serving as assistant deans of medical schools and in medicare, medicaid, the regional medical programs, and in the comprehensive health planning program as executives at all levels. It is fair to say that graduate programs in hospital administration are the primary source of trained administrative talent for health activities in this country.

This is a field which owes its existence to the Rockefeller, Rosenwald, and W. K. Kellog Foundations. They, and Kellog in particular, have invested large sums in the programs, but they feel that a successful demonstration cannot be supported by foundations indefinitely. It is time for society to assume responsibility.

The growth I have outlined to you also reflects a high degree of interest on the part of universities in what is clearly a key social responsibility. Hospital administration is an increasingly attractive career choice for bright young people who combine managerial aptitude with a feeling of social responsibility. Some of the best students on the campus demonstrate an interest in hospital administration. Many of these students, and this is important, are not considering other health careers, but are also considering Government, industry, and other graduate schools.

The graduate programs have some unique characteristic which will be of interest to the subcommittee. In the first place, they are located in a variety of departments of colleges within the university. Eight are in schools of public health, seven in graduate schools of business

or public administration, five are in general graduate schools, and others are parts of schools of medicine, health-related professions, and health services administration. Two are joint programs of two separate colleges. So, the programs do not fall administratively into the familiar niches. What this means is that these interdisciplinary programs are located in departments which have much to contribute to health program management, but with the exception of the eight in public health are outside the framework of most Federal support programs. Even programs in medical schools fail to gain access to necessary support because of the assumption that medical schools train only physicians.

It is also important to point out that the programs are very interdisciplinary. Regardless of the setting, most draw management teaching from the management school, medical orientation from faculty physicians, systems development content from engineering, and so forth. They involve teachers from economics, sociology, political science, and other faculties. The background of the program faculty members reflects this diversity. Hospital administration is proving to be an effective vehicle for mobilizing the full scope of disciplines which we must have working together for improved health services. This has particularly high payoff in the research activities the programs sponsor, which are contributing significantly to improved health care.

Mr. Chairman, we applaud the significant improvements in health manpower programs which the Health Manpower Act of 1968 embodies. Most of the people encouraged and aided by the programs under this act will work in hospitals and related facilities. Many will receive much of their training in hospitals. The Labor Department reported that, in 1965, there were 2.7 million jobs in the health service industry. About three-fourths—2 million—were in hospitals, and another quarter of a million in nursing homes. Of the predicted 5,350,000 health service industry employees in 1975, 3,375,000 will work in hospitals. It is toward the need for these people that the 1968 Health Manpower Act is focused.

The act stresses, for example, nursing education—about two-thirds of all active professional nurses are employed in hospitals and related facilities—other professions could be mentioned to reinforce the point that the hospital is the prime consumer of health manpower. When we speak of optimum utilization of scarce and expensive health personnel, we are really speaking of effective hospital management. The emphasis in the act, and in other places, on new health technologies, is largely focused on hospital-based technologies. How such technicians are utilized, indeed, if they are utilized, depends in large part on hospital management.

While we are considering health manpower here today, it should be recalled that although all health costs are rising very fast, hospital costs are outpacing all others. And 60 to 65 percent of hospital costs are salaries. Critics of health costs call for more effective utilization of personnel to control costs. Critics of quality of medical care call for more personnel with better training, as well as for more effective institutional quality controls. In addition, of course, the public has a vast investment in the bricks and mortar. Through the Hill-Burton program alone, the public has invested billions of dollars in hospitals.

The hospital administrator has the primary responsibility for the effective use of the public investment be it in bricks or people. He also has major responsibility for creating the kind of environment in which new methods can be introduced and effective manpower utilization schemes implemented. If there is to be innovation in the allocation of health duties, it will come through the efforts and stimulation of effective management in the hospitals. Hospital administrators have also taken the leadership in extending the role of the hospital to serve more than patients in bed—so that other needs of the community are served with the highly expensive resources concentrated at the hospital.

The graduate programs are preparing administrators for these tasks. The fact is, however, that the impact of the graduates has been limited. Less than half of the 7,000 general hospitals in this country are headed by professionally trained administrators. Very large segments of the Nation's health facilities have almost no trained administrators. This is true of mental hospitals—with half of the Nation's beds—rural hospitals, and extended care facilities.

Within the past few weeks, the 24 programs awarded about 400 master's degrees. It has been estimated that more than twice that number could have been placed. The demand for trained administrators far exceeds the supply, but the supply can be enlarged through increased teaching capacity and ability to compete for the really excellent students which this field can attract.

The graduate programs are quite small. The 2-year curriculum is intense and demands excellent faculty resources and seminar teaching. The number of well-qualified applicants is only slightly below the number of openings nationally and the more well-established schools have more applicants than they can now take. The Hill-Burton program recently provided support to our association for a recruiting effort which we are confident will close the gap in a short time and is significant recognition of the importance of the field. We are also encouraging the establishment of new programs and establishing formal accreditation to stimulate educational quality. The pimary barrier to meeting the Nation's needs for more well-trained health administrators is adequate faculty and the second acute need is student support.

Mr. Chairman, we have been working for 12 years for hospital administration graduate programs to have equal access to funds made available under sections 306 and 309 of the Public Health Service Act. Perhaps it is a surprise that this is a problem. For a long time the Public Health Service staff held that hospital administrators are not public health workers and the programs therefore ineligible for assistance.

At the same time other divisions of the Public Health Service worked to promote the hospital as the nucleus of community health programs. More recently, on June 5, to be exact, the University of Chicago, one of our outstanding programs in hospital administration, was refused support because the review committee "became convinced that the program was basically one in hospital administration," and that priority is given to the development "of curriculums stress the community as a base and the interrelationship of the various community organizations related to the coordination of health care systems as opposed to the approach reflected in many present day

hospital administration curriculums which concentrate primarily on the management and operation of the hospital itself."

This statement is typical of the response hospital administration programs have received from the Public Health Service and reflects a total disregard for the role of hospital administration in realizing the objectives of the 1968 Health Manpower Act. It also completely ignores the overwhelming evidence presented at the 1965 White House Conference on Health of the critical role of medical institutions in manpower development and utilization as well as the National Advisory Commission on Health Manpower and the Manpower Report of the National Commission on Community Health Services.

It ignores former Secretary Gardner's Advisory Committee on Hospital Effectiveness which said:

> The Committee believes that there is no element of health manpower whose impact on hospital effectiveness is more important than the hospital administrator's. The Committee recognizes the contribution to improvements in hospital administration made by existing university programs and their graduates but the fact that less than half the hospitals in the United States are administered by graduates with specific training for these responsibilities suggests that the educational programs need to be expanded.
>
> To achieve that purpose, the Committee strongly urges that the education and training of hospital administrators in the principles of effective management should be encouraged and facilitated by fellowships, scholarships and training grants financed by Federal funds.

Both the second and third National Conferences on Public Health Training, in 1963 and 1967, convened by the Surgeon General, called attention to the need for assistance to hospital administration programs. Nonetheless, so low a priority has been given as to freeze hospital administration programs out of consideration regardless of the merits of the case.

Mr. Chairman, we are not content to ask for clarification in the committee report of the eligibility of hospital administration programs in all university settings for assistance under section 306 and 308 of the Public Health Act, though that indeed would be helpful. We request that section 302 of the Health Manpower Act of 1968 be specifically amended to provide for assistance to graduate programs in hospital and health facility administration in all university settings and to students enrolled in such programs.

Only by such explicit action can we achieve equal opportunity for this very critical program to obtain necessary assistance and establish a priority for such assistance which is in keeping with this Nation's health manpower needs.

And if you will remember, the material presented to you this morning by the American Hospital Association, the last part of their presentation covered somewhat the same points.

Mr. ROGERS. Yes. I noticed there has been some agreement there. Did you testify before the Senate committee?

Mr. THOMPSON. I did not.

Mr. ROGERS. Did anyone for your organization?

Mr. THOMPSON. No, sir.

Mr. ROGERS. So this really has not been presented over there at all.

Mr. THOMPSON. Right.

Mr. ROGERS. Thank you so much for your statement. It will be most helpful and we will consider all of the points you have raised and the

suggestions for amendment to make sure we do have proper hospital administrators.

Thank you so much. We appreciate it.

Mr. THOMPSON. Thank you.

Mr. ROGERS. This concludes the hearings on this bill.

(The following material was submitted for the record:)

UNIVERSITY OF PENNSYLVANIA,
Philadelphia, Pa., June 10, 1968.

Hon. HARLEY O. STAGGERS,
House Office Building,
Washington, D.C.

DEAR CONGRESSMAN STAGGERS: My concern over certain provisions of the Health Manpower Act of 1968 prompts me to discuss with you particular aspects of the profession of veterinary medicine and the urgent need for continued and expanded federal support of our nation's schools of veterinary medicine.

The professions of human and veterinary medicine have long shared a common heritage. Although the early history of veterinary medicine was closely related to the cure and treatment of domestic animal diseases, this segment of veterinary science today is only one aspect included within the broad scope of this health discipline. Increasingly, the science of veterinary medicine is serving as a proving ground for the solution of problems related to the transmission, alleviation and treatment of human disease. Veterinarians today are providing answers to basic problems in public and environmental health, human nutrition and reproduction, food production and agricultural economics. Increasingly, practitioner-scientists trained in our nation's 18 veterinary schools are taking their places beside others in the health professions to assure our citizens a continuity of comprehensive medical services which result in better health and more freedom from disability and morbidity than would be possible without the contribution of veterinary medicine to the total health cosmos of our nation.

Today the concept of "One Medicine" is realistically supported by a dynamic collaboration as veterinarians, physicians, dentists and scientists in the allied fields of biomedicine work together to achieve maximal well-being for men and a healthier environment conducive to more productive living. Typical of the kinds of programs undertaken by veterinarians whose professional interest is directed toward studying the animal counterparts of human diseases are two major studies currently in progress at the University of Pennsylvania School of Veterinary Medicine. Dr. David Detweiler is engaged in a study to determine the post-mortem incidence of cardiovascular anomalies in dogs, the clinical evidence of heart disease and various parameters of cardiac function in healthy and diseased animals. Such studies have a direct correlation to the various kinds of congenital heart anomalies occurring in man. They also provide valuable information regarding the pathology, physiology and biochemistry of coronary artery disease and myocardial infarction, leading causes of death among human beings. In another project, a disease almost identical to human leukemia, bovine lymphosarcoma, is being studied by a team of veterinary investigators under the direction of Dr. Robert Marshak.

Health scientists have always been faced with the enigma that as certain kinds of diseases are eradicated or brought under control, other more complex diseases and associated problems rapidly assume the newly vacated position of urgent priority for study and solution. In the field of animal diseases, many conditions peculiar to our highly industrialized and technological society are conducive to the development of special kinds of problems which merit the serious attention of veterinarians. Such problems include the mass production of livestock and poultry, concentration of animals in small geographic areas for feeding and economic management, transportation over long distances for marketing and breeding, and the addition of hormones, chemicals, drugs and antibiotics for increased growth and production. The close proximity of animal pets and animals which participate with man in sporting or relaxation activities multiplies the opportunity for human infection with disease agents harbored by or transmissible from animal to man.

For those interested in scientific research, the specialized kinds of experience which constitute the training of a veterinarian make his knowledge and skill of unique value in the design and execution of experimental animal models capable of determining the projected effect on man of an outer space or subterranean

environment. Veterinary scientists have been among the innovators of some of the original research programs designed to quantitate the effects of acceleration and deceleration on human and animal metabolism and problems related to acclimatization at atmospheric pressures and composition at variance with those normally encountered by man.

Many other opportunities for valuable contributions in the field of scientific research parallel these newer challenges in which many of our nation's veterinarians are engaged. The production of vaccines and antitoxins to control the spread of both human and animal diseases has traditionally been a field in which veterinarians have worked together with physicians, immunologists, biochemist, pharmacologists and scientists from any other basic and clinical disciplines. Many advances in human medicine and surgery, including developing and perfecting open heart surgical techniques, hypothermia, the introduction of improved drugs for anesthesia and splinting techniques for broken bones have been pioneered with the aid of veterinarians. Other essential areas of research include the design and management of methods for insect and parasite control.

Today about 50% of the nation's veterinarians work with farmers and agricultural specialists to produce quality cattle, swine, sheep and poultry for human consumption. It is conservatively estimated that losses to the livestock industry incurred by the morbidity and mortality caused by animal disease and infection amount of 15% of total production annually. A considerable portion of the price the consumer pays for poultry, eggs, milk, meat and other animal products reflects losses to the farmer due to death and disease of animals he is unable to market. Estimations of the economic losses due to the six major disease problems among cattle, sheep and swine—mastitis, leptospirosis, bloat, hog cholera, erysipelas and brucellosis—range from 300 million to 500 million dollars yearly. Allied to the work of veterinarians in the field of disease eradication and control is the valuable assistance many veterinarians have given to our allies and to the lesser developed nations of the world as they have worked to rebuild or strengthen their livestock industries and improve their national economy.

Veterinarians are engaged in a wide variety of programs and activities oriented to provide our citizens with more wholesome and economic nutrition. Some of these include improving the quality of meat products, solving problems related to the sanitary preparation, packaging and storage of food products, the effect of drugs, food additives and insecticide residues on food products and monitoring the food industry to insure that legal safeguards regarding product identification, preparation and quality are respected.

Of the 100 diseases known to be transmissible from animal to man, about 30 occur with some degree of frequency in the United States of America. The effective cooperation of veterinarians with other public health professionals has been specifically responsible for significant reductions in the incidence of rabies, tuberculosis, brucellosis, parrot fever and other diseases of man. At various research stations throughout the United States, veterinarians and other public health officials are alert to the identification of animal diseases which are not presently found within continental United States. These activities have prevented the introduction of the dreaded hoof and mouth disease and rinderpest. Continuing research studies in the control and eradication of such diseases are essential because there is constant danger that such diseases may accidentally be introduced into our country at any time because of the ease and rapidity with which world-wide transportation functions as a disease vector.

In order to insure our nation's supply of manpower to staff these varied and challenging opportunities available today and tomorrow for those whose aptitude, ability and interest lie within the realm of veterinary medicine, our nation's veterinary colleges need continued and expanding federal support.

In order to fulfill their commitment to those eager, capable and deserving to pursue the arduous training necessary to qualify as a graduate veterinarian, our nation's veterinary colleges urgently need federal funds to expand their teaching faculties. Currently, three qualified candidates are not admitted for every student that is admitted to veterinary school simply because teaching facilities are not available. Equally needed is financial support to completely equip and expand laboratories and clinical facilities and classrooms and to provide the means for the continuance of valuable fundamental and applied research. Loan and other plans to ease the financial problems associated with prolonged professional schooling must be made available to students in the basic veterinary science curriculum and to attract graduate students to the basic and clinical sciences. Those with graduate training are urgently needed as teachers in the biological and

physical sciences and to train others as research workers and as public health officials.

Today veterinary medicine is so much a part of the health of man that this profession and its future practitioners should receive the same consideration with respect to federal support as medicine and the other health professions. It is essential that basic improvement grants be continued and extended to our nation's veterinary schools so that they can continue in their expanding contribution to our nation's health.

Sincerely,

LUTHER L. TERRY, M.D.,
Vice President for Medical Affairs.

THE AMERICAN PUBLIC HEALTH ASSOCIATION, INC.,
Washington, D.C., June 12, 1968.

HON. JOHN JARMAN,
Chairman, Subcommittee on Public Health and Welfare, Committee on Interstate and Foreign Commerce, Rayburn House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: I wish to inform you of the American Public Health Association's views on legislation which your Committee is now considering relative to the continuation of programs intended to assist in the development of health manpower, H.R. 15757. The APHA in the past has supported each of the programs contained in this legislative proposal; I would like to comment on them individually and suggest improvements to the basic legislation.

The APHA recommends that the authorization for the Health Professions Educational Assistance Act be continued. The impact of initial authorization has yet to be felt because of the time lag necessary to realize originally intended benefits. Considerable time is needed to increase the ranks of physicians, dentists, and other health professionals and this should in no way overshadow the nation's duty to increase their number. Our Association believes that the authority of this provision should include colleges of veterinary medicine as institutions eligible for basic improvement grants. Contributions of doctors of veterinary medicine to human health are well known; and there is a need to train even more individuals in the field of veterinary medicine. We recommend, therefore, that basic improvement grants be made available to colleges of veterinary medicine.

The American Public Health Association also believes there is a justification for continuing the priority for training nurses. The shortage of qualified nurses is a critical problem not only in the health programs recently authorized by Congress, but in delivering existent health care needed throughout the country. Consequently, we urge that the authority for nurse training be continued.

The third title under this Act relates to the training of allied health professionals. We urge the continuation of this authority and point out that this program has not had an opportunity to prove its worth. This is due in part, we think, to the inadequate financing appropriated. It is worth noting that until skilled persons assume the responsibility for the various roles in the medical care spectrum, the already overworked physicians, dentists and nurses will continually fail to meet the monumental demands for health care. Therefore, we support the continuation of the authority for allied health professional training.

Most certainly the grant authority proposed by the bill, H.R. 15757, should be extended for project grants to train personnel in schools of: public health, nursing, engineering, in departments of preventive medicine at medical schools, and in other appropriate areas. We are not familiar with the Administration's views on the amounts of funds needed to implement these programs. There might be some reason for persons to disagree as to what is necessary, but we would urge that these authorizations be at least equal to and preferably exceed authorizations contained in the presentAct.

We hope that Congress will act affirmatively on this forthcoming legislation and we hope it will incorporate our suggested changes within this legislation.

I would appreciate your makng these recommendations a part of the hearing records.

Sincerely yours,

BERWYN F. MATTISON, M.D.,
Executive Director.

AMERICAN OSTEOPATHIC ASSOCIATION,
Washington, D.C., June 21, 1968.

Hon. HARLEY O. STAGGERS,
Chairman, Interstate and Foreign Commerce Committee,
House of Representatives,
Washington, D.C.

DEAR MR. CHAIRMAN: The American Osteopathic Association is genuinely grateful for the opportunity to present its views on H.R. 15757 during its consideration by the Committee on Interstate and Foreign Commerce of the House of Representatives.

The American Osteopathic Association believes that H.R. 15757 provides the impetus for the solution of some of our health problems.

We endorse the health recommendations of the President in his message to Congress on March 4, 1968. The proposed Health Manpower Act of 1968 embodies his goals ". . . to meet the urgent need for more doctors, nurses, and other health workers" . . . "to deal with the soaring costs of medical care and to assure the most efficient use of our health resources", and "to launch a nationwide effort to improve the health of all Americans."

The objective of the American Osteopathic Association is to promote the public health, to encourage scientific research, and to maintain and improve high standards of medical education in osteopathic colleges.

The Osteopathic profession is deeply involved in the attack on our nation's health problems in many ways. The need for more physicians is undisputed and the five colleges of osteopathic medicine continue to increase the number and quality of their graduates. The 1968 class of 430 graduates was almost 20% larger than that of 1966. Total enrollment in the same period has increased over 8%. However, the rising cost of education, especially in the health professions is a huge obstacle to the necessary expansion of the educational capacity of our colleges, both qualitatively and quantitatively.

Seldom does a college have the capability of expanding its student body, faculty and facilities without outside financial help. Traditionally, the members of the osteopathic profession have contributed a higher percentage of financial support to their colleges than have the members of the other health professions. Today's costs and needs require additional support such as that provided by H.R. 15757.

The bill under consideration extends and strengthens five laws vital to our health manpower programs. Of most immediate concern to the American Osteopathic Association and the American Association of Osteopathic Colleges is Title I of H.R. 15757 which relates to Health Professions Training. The construction grants, institutional and special project grants for training and student aid available under the Health Professions Educational Assistance Act of 1963 have played a major role in our ability to graduate a steadily increasing number of better trained osteopathic physicans and surgeons, 63% of whom are general practitioners providing direct health care to the people.

This proposal is aimed at simplifying procedures and better coordination of the support of construction so that schools planning to construct facilities to serve a variety of functions will not be forced to deal with several authorities and several different review procedures and priorities. This would mean the elimination of many problems which have hindered the progress of some programs. Flexibility is desperately needed if the problems of the individual schools are to be solved and costs kept to a minimum and we welcome the flexibility of planning and operation and the increased support proposed in the grant and student aid programs which Title I provides. Along with this increased support comes greater responsibility. The assurance by the Federal Government of fair and proper distribution of funds and the demonstration of efficiency and good faith by the health professions will enhance this ever-growing partnership in Health.

One pervading problem faces our expanding educational institutions: the question of quantity versus quality. Such a dichotomy should not exist. What is needed is the fusion of the two and yet in the past an emphasis on quantity has aroused concern over quality. The question often raised is how to get the most out of what you have. Where facilities are limited and the faculty small, it is unrealistic to demand expansion, yet a vicious circle has developed in the health professions. In order to secure Federal support, an institution must insure an enrollment increase. This places added pressures and workloads on the administration and faculty and regression, instead of progress may result. Care

must be exercised to be sure that quantity is not the major factor in determining the eligibility for financial support or the quality of the end result.

We do not want the committee to feel that the American Osteopathic Association is disinterested in the other titles of H.R. 15757. It most certainly is interested, but would prefer to let those in the health profession who are more knowledgeable, comment on their specific problems.

On behalf of the American Osteopathic Association and the American Association of Osteopathic Colleges may I convey their sincere appreciation of the opportunity to present their views to your committee.

Sincerely yours,

ROY J. HARVEY, D.O.,
Director.

PHARMACEUTICAL MANUFACTURERS ASSOCIATION,
Washington, D.C., June 18, 1968.

HON. JOHN JARMAN,
Chairman, Subcommittee on Public Health and Welfare, Rayburn House Office Building, Washington, D.C.

DEAR MR. CHAIRMAN: This letter is submitted on behalf of the Pharmaceutical Manufacturers Association concerning H.R. 15757, a bill entitled "The Health Manpower Act of 1968." It is a companion measure to S. 3095, a bill similarly entitled, on which hearings were held before the Senate Labor and Public Welfare Committee on March 21. This bill, among other things, would extend and improve the existing construction program for teaching facilities for students in the schools of medicine, pharmacy, and other health professions; it would also broaden the student loan and scholarship program to provide financial assistance to needy students in these professions.

The PMA is a national trade association representing 136 firms which manufacture approximately 95 percent of the nation's supply of prescription drugs. We respectfully call to the Subcommittee's attention the historical fact that there has been no important development in the field of effective drug therapy for more than a quarter century where members of the PMA have not played a significant role either in the discovery of the therapeutic agent or in defining its utility and making it readily available to the professions of medicine and pharmacy.

The PMA is vitally interested in this legislation because of the effect it has on the health of this nation and upon the people who are providing our medical and health services. Graduates of our medical and allied health schools are meeting the demands of Federal and state governments, of the armed services, of education, of research, of community services, and of industry. The pharmaceutical manufacturing industry employs many physicians, pharmacists, and others and our concern, therefore, is that the nation have an adequate supply of such personnel.

The PMA believes that the extension and improvement of the construction program for teaching facilities which was initiated in the 88th Congress by the enactment of the Health Professions Educational Assistance Act is in the best interests of the nation because it makes possible the education and training of a greater number of physician and pharmacists. If our country is to be able to meet the demands for services now being made on its health professions, the enrollment in our medical, pharmacy and other health schools must be increased. To achieve this expanded enrollment through construction of additional facilities at existing schools, as well as through the creation of new schools, we feel that it is necessary to have increased financial support from both the Government and private sectors.

The PMA also approves the provisions of H.R. 15757, which make schools of pharmacy eligible to apply for special project grants; however, the bill excludes them from receiving institutional grants. We believe that H.R. 15757 should be amended to extend eligibility for institutional grants to schools of pharmacy, thus including schools of pharmacy among the other health schools eligible to receive such grants.

It would be appreciated if you would make this letter a part of the printed record of your Subcommittee's hearings on H.R. 15757.

Respectfully submitted,

C. JOSEPH STETLER, *President.*

THE NATIONAL ASSOCIATION OF RETAIL DRUGGISTS,
Washington, D.C., June 18, 1968.

Hon. JOHN JARMAN,
Chairman, Subcommittee on Public Health and Welfare,
House of Representatives, Washington, D.C.

DEAR MR. JARMAN: The purpose of this letter for the printed record of H.R. 15757 hearings is to apprise you and other members of the important Public Health and Welfare Subcommittee of the U.S. House of Representatives Committee on Interstate and Foreign Commerce regarding the views of the National Association of Retail Druggists on H.R. 15757, the "Health Manpower Act of 1968."

The National Association of Retail Druggists, with the largest national membership of retail pharmacy owners in the country, has historically been vitally concerned with all aspects of pharmacy education. Our concern is emphasized by the fact that 90 percent of the nation's pharmacists are employed in retail drug stores. N.A.R.D. represents over 40,000 independent retail pharmacies comprising about 90 percent of such stores. More than 75,000 licensed pharmacists are engaged in the practice of pharmacy in our member stores.

We support continuation and the proposed extension of the program for the construction of teaching facilities for students in schools of pharmacy. We support extension of the student loan and scholarship provisions for needy pharmacy students and authorization of special grants to pharmacy schools.

In 1965 the N.A.R.D. took a similar position which received favorable consideration by members of your distinguished committee.

We are concerned that H.R. 15757 does not provide institutional grants for pharmacy schools, for we believe that an inclusion of pharmacy schools deserves reconsideration as such inclusion would probably enhance greatly the diversified health care training programs in the college of pharmacy and would materially benefit the public.

From our vantage point, the N.A.R.D. believes retail pharmacy is an essential link in the expanding Health and Medical Care programs. The drug distribution system in America through retail pharmacies is superior to all other approaches and is the one in most demand by the public. The retail pharmacy in the communities is indispensable and irreplaceable. We are confident that institutional grants for pharmacy schools are necessary to attract and secure appropriate teaching personnel and to pharmacy college services on a basis that is adequate to meet the future managerial and professional challenges of retail pharmacy. It is our recommendation that consideration be given to amending H.R. 15757 so that pharmacy schools might be eligible for appropriate institutional grants.

In the interest of high caliber pharmacy education for a greater number of pharmacy students to meet the critical shortage of pharmacy manpower, the National Association of Retail Druggists appreciates this opportunity to express its views on H.R. 15757. We recognize H.R. 15757 as health legislation of major interest to the public and to the pharmacy profession we proudly represent.

Sincerely yours,

WILLARD B. SIMMONS,
Executive Secretary.

AMERICAN ASSOCIATION OF COLLEGES OF PODIATRIC MEDICINE,
Washington, D.C., June 17, 1968.

Hon. HARLEY O. STAGGERS,
Chairman, Committee on Interstate and Foreign Commerce,
U.S. House of Representatives, Washington, D.C.

DEAR MR. STAGGERS: The American Association of Colleges of Podiatric Medicine supports H.R. 15757 known as the "Health Manpower Act of 1968."

The Association of Colleges is a voluntary, not-for-profit, corporation. The five member colleges of podiatry are accredited by the American Podiatry Association's Council on Education, the agency recognized for this purpose by the Commissioner of Education, U.S. Department of Health, Education and Welfare. The colleges are all private, independent, non-profit institutions. The minimal educational program is four years of podiatry college after two years of undergraduate work. One third of the podiatry college graduates also complete an additional year of internship in various hospitals and colleges of podiatry, and some of them additional residency years, for a total of as much as ten years beyond

high school. Podiatrists are licensed by examining boards in every state to treat the foot by medical and surgical means.

As your Committee will knows, the podiatry profession has been deeply concerned for many years about the problem of providing a supply of well educated professionals adequate to meet the health needs of our people. As a direct result of the provisions of the Health Professions Educational Assistance Act the five accredited colleges of podiatry have been able to increase first-year student enrollment from 167 four years ago to 311 this year, an increase of 86.2 percent during this period.

Despite the increasing number of well qualified graduates the Nation's critical shortage of podiatrists is as yet only being abated very slowly. Podiatric care is becoming more available to larger proportions of our population. The Congress last session included podiatrists' services for Medicare beneficiaries. Also, Title XIX programs in the various states utilize the services of podiatrists. the facilities and resources of the colleges of podiatric medicine are cooperating fully with these community health programs.

In other areas increasing numbers of podiatrists are being sought for positions on community public health teams. The armed services have doubled the spaces for podiatrists during the past two years and further expansion is projected. Podiatrists are making increasing contributions to the Nation's health manpower resources.

The U.S. Department of Labor in Report No. 323, June, 1967, "Health Manpower 1966–75—A Study of Requirements and Supply," pinpoints the need for increased numbers of podiatrists. "To meet projected needs, the average annual number of graduates of podiatry colleges must be increased substantially above the current levels between 1966 and 1975. Some increases in facilities are expected as a result of funds provided by the Health Professions Educational Assistance Act of 1963. However, a great deal of additional action is necessary to increase the capacity of the schools," says the report.

Our purpose is to make clear our support of H.R. 15757 and to urge favorable consideration of it by this Committee. In this statement, we would like to outline the progress that has been made in recent years and the need for continuation of this legislation.

Construction.—All five colleges of podiatric medicine are planning construction of new facilities and major expansion and renovation of existing facilities. One college has received approval for matching construction funds under the present act. Additionally, projects and plans are underway for the opening of one or more new colleges within the next four to six years.

Institutional grants.—Collectively, the member institutions of the American Association of Colleges of Podiatric Medicine received $559,850 for Basic Improvement Grants for FY 1968. These funds were used almost exclusively to employ new faculty, increase faculty salaries, convert part time faculty to full time faculty, and to provide supporting staff for the faculty. As a result of these grants the educational program has been considerably enlarged and much enriched.

Special project grants.—The Special Project Grant requests for FY 1968 ($1,234,817) will be used to augment the faculty programs begun in the basic improvement area. The funds will be used to provide additional teaching personnel, additional supporting personnel, additional necessary teaching equipment and supplies in both the basic science and clinical science divisions, as well as for other related faculty improvement projects.

Scholarship grants.—In FY 1968, 120 podiatry students received $84,389 in scholarship support. The amount of monies requested by the students was approximately double the sum which was finally allocated. Based upon a survey conducted by the American Association of Colleges of Podiatric Medicine in January, 1968, it has been determined that over one-half of the students currently receiving scholarship funds would not have been able to continue in college had they not received these awards.

Student loans.—In FY 1968, 384 students received $397,879 in loan support. The same situation exists for loans as for scholarship grants. Without these funds fully one-half of the student body would either have been totally unable to continue their podiatric education or would have been forced to seek extramural, less accessible forms of educational financial assistance.

It should be noted that the aforementioned figures for scholarships and student loans are equally applicable to both categories. Many podiatry students are deriving assistance from multiple sources. It is the opinion of the American

Association of Colleges of Podiatric Medicine that increased financial assistance to the individual students under the direct control of the colleges would ensure more future practitioners and students better qualified to pursue studies in an atmosphere not characterized by omnipresent financial worries, and without limiting matriculants to the upper socio-economic strata.

The American Association of Colleges of Podiatric Medicine is pleased to take this opportunity to express its strong support for H.R. 15757 entitled "Health Manpower Act of 1968." This bill when enacted by the Congress will have a positive and substantial impact upon the future health of the American public by making it possible to increase the number of doctors of podatric medicine (valued members of the health manpower pool) by providing continued assistance for improvements in the teaching programs of podiatry colleges, and by providing loans and scholarships for young scholars who otherwise might not be able to consider a career in podiatry.

It is our opinion that H.R. 15757 will provide some of the funds needed to meet critical problems facing the health professions today. On behalf of the American Association of Colleges of Podiatric Medicine it is respectfully requested that this statement on H.R. 15757 be considered by your Committee and included in the record of these hearings.

Respectfully yours,

MAX M. POMERANTZ, M.D.,
President.

THE JOHNS HOPKINS UNIVERSITY,
SCHOOL OF MEDICINE,
DEPARTMENT OF PATHOLOGY,
Baltimore, Md., June 10, 1968.

Representative HARLEY O. STAGGERS,
Chairman, Committee on Interstate and Foreign Commerce,
Rayburn Building, Washington D.C.

DEAR MR. STAGGERS: This is to affirm support of The Health Manpower Act of 1968 and to urge an amendment which would extend institutional support to include veterinary medicine, for the contributions of veterinary medicine to human health in the field of comparative medicine and research are especially vital.

It has become apparent that studying the naturally occurring diseases of animals which are counterparts of human disease can make signficant contributions to medical knowledge. To mention but a few, studies of the causes and treatment of such human diseases as leukemia, heart disease, and inherited disorders, have good equivalents in animals and are being explored by applied and basic methods which could not be utilized on human patients. Veterinarians, because of their backgrounds in Animal Medicine are best equipped to perform many of the investigations.

There are currently 10 veterinarians actively engaged in teaching and research in comparative medicine at Johns Hopkins. Five of these persons are in post doctoral training programs which will prepare them for careers in comparative medicine. Several medical schools have formed departments within their faculties to develop similar programs and also to provide the necessary care for experimental animals for this has often been neglected. Medical schools are actively seeking personnel to staff these departments, but unfortunately the other demands of veterinary medicine continue to require virtually all available graduates.

The future of medical research and teaching will depend to a continually greater extent upon comparative medicine and the contributions of veterinarians specifically trained in these areas. Veterinary medicine is a very small profession as compared to medicine and to impose limitations on the availability of veterinarians for careers in comparative medicine will certainly compound the shortages already present. The needs of future populations, not only in these areas, but even more critically in the care of food producing animals, will certainly be far greater than at present.

In consideration of the above points, we strongly urge the inclusion of veterinary medicine for institutional support under The Health Manpower Act.

Certainly the contributions of veterinary medicine to human health, both directly and indirectly, equal or exceed those of the other allied professions which are to receive this support.

EDWARD C. MELBY, Jr., D.V.M.,
Associate Professor and Head, Division of Animal Medicine.
ROBERT A. SQUIRE, D.V.M., Ph. D.,
Assistant Professor of Pathology, Assistant Professor of Animal Medicine, Director, Comparative Pathology.

UNIVERSITY OF KANSAS MEDICAL CENTER,
Kansas City, April 16, 1968.

HON. HARLEY O. STAGGERS,
Chairman, House Interstate and Foreign Commerce Committee,
House of Representatives, Washington, D.C.

DEAR CONGRESSMAN STAGGERS: I am respectfully presenting my views concerning the proposed legislation for the support of veterinary medical education and requesting that consideration be given to including the 18 veterinary schools and colleges in the basic improvement grant program.

My experience has been in human medical education but I have visited several of the veterinary medical schools and know well several of their Deans. Furthermore, at the request of the Association of American Medical Colleges, I have led in developing a federation of schools of health professional educational organizations and have purposely involved in this federation the Association of Schools of Veterinary Medicine as well as medical schools, nursing schools, pharmacy schools, and allied health professional schools. This new federation scheduled next to meet on July 10, 1968, also includes representatives from the Office of the Secretary of HEW and the Bureau of Health Manpower.

Further testimony as to the importance of the veterinary medical schools in the health professional educational team lies in the fact that virtually all medical schools now employ veterinary physicians to care for experimental and teaching animals. Still more important, however, is the fact that more and more human disease analogues have been found in animals thus providing prototypes for the study of human disease. Animal vectors in the transmission of human disease are still poorly understood.

You may question the lack of progress in this regard until recently by pointing to the fact that all medical schools have used experimental animals for years. This raises a very improtant point in that in the past investigators in medical schools have been attempting to produce human diseases in normal animals for study purposes. The medical school animal laboratories have not focused on naturally occurring analogues of human disease in animals. The latter has been done by veterinary schools which have been poorly supported and overburdened with teaching so that research in veterinary schools has not flourished until recently. Moreover veterinary medicine has been oriented to agricultural activities as evidenced by the fact that many of the veterinary schools are in connection with state agricultural collegs and not state universities, the latter of which harbor the medical schools in our state university systems.

In Kansas our veterinary school is 200 miles from the Medical School. The Dean of Kansas State College of Veterinary Medicine and I have been attempting to bring our two staffs together in spite of the distance problems. In short by this letter I am describing veterinary medicine as a progressively more important part of the health team and urge that in federal legislation it be treated as such.

Sincerely yours,

GEORGE A. WOLF, Jr., M.D.
Dean and Provost.

THE PENNSYLVANIA STATE UNIVERSITY,
THE MILTON S. HERSHEY MEDICAL CENTER,
COLLEGE OF MEDICINE,
Hershey, Pa., June 11, 1968.

Hon. HARLEY STAGGERS,
Chairman, Interstate and Foreign Commerce Committee,
House of Representatives, Washington, D.C.

DEAR CONGRESSMAN STAGGERS: I regret that it will not be possible for me to attend the hearings on HR 15757 scheduled later this week before your Committee on Interstate and Foreign Commerce. I will be out of the country on an assignment for the Association of American Medical Colleges.

I am Dean of The Pennsylvania State University College of Medicine which has this year taken its first class of medical students.

In the teaching of medical students for the ultimate care of human patients, animals are widely used in laboratory teaching exercises. We have completed this year at Hershey a model facility for the housing of animals for both teaching and research. These facilities have been constructed wtih the aid of matching funds provided by the Congress. It would be impossible to do the type of teaching without these facilities.

The operation of the facilities and the care of the animals is the responsibility of graduate veterinarians who work full-time for the Medical School, in addition to caring for the animals to see that optimum provision is made for their welfare. The veterinarians study the diseases which appear naturally in animals. Many of these diseases are caused by the same agents which produce human disease of similar character. The lessons learned from study of such disease processes can often be applied more easily and quickly than if the studies were initiated first in the human being.

Training of veterinarians to serve in medical schools is initially done in colleges of veterinary medicine. These institutions need more support, both to train the professional people who may ultimately work in a medical school and to conduct research done primarily on the animals and animal diseases themselves. The basic information on the causes of many types of chronic illnesses which are becoming increasingly important in human disease processes requires long-term study of animals. Research is also badly needed in the basic biologic aspects of behavior, both of the group and of the individuals. Much behavioral research can be effectively done in animals species and the principles then extrapolated to the human being.

I urge your support of legislation which will improve the facilities needed for the training of veterinarians who will perform studies that ultimately will have an impact on human health.

If I can comment in any further way on any of the points in the bill you have under consideration, please command me.

Respectfully yours,

GEORGE T. HARRIS, M.D., *Dean.*

CASE WESTERN RESERVE UNIVERSITY,
FRANCES PAYNE BOLTON SCHOOL OF NURSING,
Cleveland, Ohio, April 29, 1968.

Hon. HARLEY O. STAGGERS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR MR. STAGGERS: I am writing to you with regard to the proposed Health Manpower Act of 1968. I wish to comment particularly about items in Title II of the bill.

As it now stands, the bill would require that a State agency would be named as an accrediting authority for schools of nursing eligible to receive Federal funds. I oppose this provision vigorously as a nurse educator and as a citizen interested in wise use of Federal funds and in support of legislation that will improve the health care of citizens in our country.

Voluntary accreditation has been the one force that has remarkably upgraded the quality of nursing education in our country. Currently, seventy-five per cent of all students enrolled in nursing schools are enrolled in schools having such accreditation. Graduation from an accredited school almost without exception is a guarantee that a graduate will be able to pass the licensing examinations; in contrast, graduation from a nonaccredited school does not give such assurance. We cannot afford to waste Federal funds in support of education that is not worthy of accreditation by the national voluntary accreditation

agency. You should know that the largest enrollments are in schools having National League for Nursing accreditation and thus expenditure of Federal funds in those schools would alleviate the current nursing shortage.

I am concerned about a second provision of the bill, namely, that of program support for the schools. As proposed, each school, regardless of type, would receive program support in the amount of $15,000. Graduate education is far more expensive than is undergraduate education. Moreover, institutions of higher learning bear the greatest burden in that they must prepare leadership personnel for all schools and all service agencies. May I suggest that the bill be amended with a remarkably increased provision for program support for graduate schools. An annual support grant in the amount of $50,000 for each would be more appropriate.

We appreciate your help and support in regard to this legislation and will be eager to watch its movement through the legislative chambers.

Sincerely yours,

ROZELLA M. SCHLOTFELDT, *Dean.*

MISSOURI VETERINARY MEDICAL ASSOCIATION,
Columbia, Mo., April 8, 1968.

Hon. JOHN JARMAN,
Chairman, Subcommittee on Public Health and Welfare,
House of Representatives, Washington, D.C.

DEAR REPRESENTATIVE JARMAN: We are writing to you about (Senate Bill S. 3095), or H.R. Bill 15757. We would like to bring to your attention that institutional grants for veterinary medicine have been left out of these pieces of legislation. We feel that it by all means should be included.

According to the Department of Labor Report, published in November 1965 specific attention was given to the great demand and short supply of veterinarians. This situation had been predicted in 1961 when the American Association of Land Grant Colleges and State Universities unvisioned a need for 64,440 Veterinarians (now 23,000) by 1980.

In 1962 the United States Subcommittee on Reorganization and Internal Organization under Chairman Hubert H. Humphrey reported "Estimated number of Veterinarians needed in North America by 1980 is 47,250".

Upon the already serious deficit came the passage of the Laboratory Animal Care Bill in 1966, Food and Drug Legislation, the Wholesome Meat Act of 1967 as well as the contemplated Poultry Inspection's Act of 1968. Military requirements, bromidicail research and public health demands far exceed the supply.

Veterinarians are also being used to collaborate with, and relieve the shortage of, Physicians.

One of the major factors in the current advance of human health standards during recent years has been the utilization of the living larger animal as models for the human in research. The pig alone has been utilized for the development of a long list of effective treatment. Each of the many animal species have certain features that closely parallel the human. Thus, the members of the animal kingdom may be selected to form, a battery that, in the composite nearly duplicate the human. In the work utilizing animals to solve human health problems we find the Veterinarian and the Physician working in collaboration. This is a most rewarding and logical approach. However, the number of Veterinarians required for participation in comparative medical research is depleting Veterinary Medical manpower in the more traditional areas.

The inadequacy of the School at the University of Missouri is illustrated by the migration of Veterinarians into the State. Of the Veterinarians newly licensed by the State of Missouri recently only 25% were graduates of the University of Missouri, the other 75% migrating here from other Universities.

Because there are only eighteen Colleges of Veterinary Medicine located in 17 states the existing schools must provide for the needs of the 33 states not having Schools of Veterinary Medicine. This means that, more than any other major health profession, Veterinary Medical Education is truly of a regional and national nature. Federal support is extremely important.

Yours truly,

D. R. HANEY, D.V.M.,
Chairman of the Legislative Committee.

BOSTON UNIVERSITY,
SCHOOL OF NURSING,
Boston, Mass., February 2, 1968.

Hon. PHILIP J. PHILBIN,
House of Representatives,
Washington, D.C.

MY DEAR REPRESENTATIVE PHILBIN: I wish to express my opposition to the H.R. 13096, introduced by Representative Fred B. Rooney, and S. 2549, introduced by Senator Lister Hill. The purpose of both bills is to prevent attrition and promote development of public and nonprofit private diploma schools of nursing.

Experience with similar provisions of the Nurse Training Act of 1964 demonstrated that payments to diploma schools has not decreased student attrition, nor has it developed these programs. There was a net decline of 24 diploma programs during 1966.

However, during the same period, there was an increase of 32 programs in junior community and four-year colleges. Money should be appropriated to assist these two types of programs in expansion. Support should be made to nursing programs in general, with no designation of type of program. You are undoubtedly aware of the recent discussions in the Department of Health, Education, and Welfare about whether the Federal Government should enter the field of accreditation of institutions of higher education. The belief was accepted by all concerned that, in a democracy, voluntary nongovernmental type of accreditation was the wisest path to follow.

I would also like to make a very *strong* plea that nurses be included on all committees established by Congress to consider health and welfare. All legislation should be so stated. Nursing is such an essential aspect of all health and welfare programs that it is practically impossible for any group to plan for the best health care for the people without consultation with, and the cooperative thinking of, the nurse.

Sincerely yours,

ANNE KIBRICK, Ed. D., *Dean.*

OKLAHOMA BOARD OF NURSE REGISTRATION AND NURSING EDUCATION,
Oklahoma City, Okla., June 24, 1968.

Hon. HARLEY O. STAGGERS,
Chairman, Committee on Interstate and Foreign Commerce, House of Representatives, Washington, D.C.

DEAR SIR: H.R. 15757, the Health Manpower Amendments of 1968 has been considered recently by the Public Health and Welfare Subcommittee of the Committee on Interstate and Foreign Commerce. Title II or this bill would extend the Nurse Training Act of 1964 for four more years. We solicit your support of this bill and believe that the "Program Review Report of the Nurse Training Act of 1964" (PHS publication No. 1740) will verify the value of this Act, as well as provide guidance for the Congress in this most important matter.

Section 231 of H.R. 15757 proposes a change in the definition of accreditation which is of great concern to us as the state approving agency for schools of nursing in the state of Oklahoma. It is essential that schools of nursing receiving federal funds be accredited by a recognized national accrediting agency if proper use of federal funds is assured.

In most states, a state board of nursing has the legal responsibility for approving schools of nursing which meet *minimum standards* established by the statute and regulations. Accreditation by a recognized national accrediting agency is evidence that the school of nursing meets *more than* minimum standards. The quality of nursing education is seriously threatened if this clause is not deleted.

We request that you also consider the types of pressure which can be exerted in the various states on an administrative agency and the likelihood that this would result in even lower standards, in some instances.

Your interest and support for our concern regarding this legislation are sincerely appreciated.

(Miss) FRANCES I. WADDLE, R.N.,
Executive Director.

MISSISSIPPI NURSES' ASSOCIATION,
Jackson, Miss., June 24, 1968.

Hon. HARLEY O. STAGGERS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.

DEAR REPRESENTATIVE STAGGERS: Through recent communications, I have learned that the American Nurses' Association has expressed concern to you about the proposed change in the definition of accreditation, Section 231 of HR 15757.

On behalf of the members of the Mississippi Nurses' Association, I want to express our concern and re-affirm the position of the American Nurses' Association. We vigorously oppose the use of tax funds to nursing programs that have not raised standards for national accreditation or for reasonable assurance of accreditation by a recognized national accrediting body.

Omission of accreditation by a national accrediting agency will lower standards only. Two schools in our state have been accredited by a national agency (National League for Nursing).

We are having a high percentage of failures (51%—1967) on state board examinations. The Nurses Board of Examination and Registration feels that if all schools would raise standards above the minimum requirements by a state accrediting agency, there would be less failures. The failure rate is of great concern in this state and could be improved with upgrading standards.

Our aim is for quality professional care and any lowering of standards could only result in a down hill trend—quality is certainly more to be desired than quantity no matter how great the shortage.

We urge you to support national voluntary accreditation of nursing programs as pre-requisite for eligibility to apply for federal funds and will appreciate your interest and influence in removing the clause "or by a state agency" to the language of the Act.

Sincerely,

MRS. ONEITA DONGIEUX,
Executive Director.

MEDICAL SOCIETY OF THE STATE OF NEW YORK,
New York, N.Y., May 31, 1968.

Hon. F. J. HORTON,
House Office Building,
Washington, D.C.

DEAR MR. HORTON: The House of Delegates of this Society adopted the following resolution at its annual meeting in February 1968.

Resolved, That this House of Delegates of the Medical Society of the State of New York urge that the appropriate Federal agency study the proportion of graduating physicians who enter the field of medical research and the extent to which Federal support encourages duplication of research and diverts needed manpower from medical practice.

The Council directed me to transmit this statement to the senators and representatives from New York State.

Sincerely yours,

HENRY I. FINEBERG, M.D.,
Executive Vice-President.

MERCER UNIVERSITY,
Macon, Ga., June 13, 1968.

Hon. JOHN JARMAN,
Chairman, Subcommittee on Public Health and Welfare,
Rayburn House Office Building, Washington, D.C.

DEAR CONGRESSMAN JARMAN: The bill H.R. 15757, known as the Health Manupower Act of 1968, deserves and will receive the support of all educators in medical and medical-related education. I deeply hope that it will be passed.

Mercer University owns and operates the Southern School of Pharmacy in Atlanta, Georgia, and consequently we are conscious of the critical needs of all health educational endeavor, but especially pharmaceutical education. It is fortunate for us at this time that pharmacy is included in the Special Projects Grants under Title I, Part B, Section 772 of H.R. 15757.

Pharmaceutical education, and indeed all medical education, now stands at a very critical juncture. The vast changes taking place in medical practice mean that new directions must be planned and implemented carefully in order that the total public health program of this nation may continue to advance. It is my opinion that the Special Projects Section will contribute materially to this development in medical education. I note that in previous aid programs pharmacy has not been included in the Institutional Grants Section and that it is not so included under Title I, Part B, Section 771 of this Bill. In my judgment, pharmacy should be included here because of its role in the total health program of our nation.

I am sure you are aware that over the past few years a number of privately operated schools of pharmacy in the United States have been forced to close because of lack of financial support. The number of pharmacy schools in this country has decreased to seventy-four, and with the growing demand for adequately trained people in the profession, it seems to me that it would be wise to include pharmacy in the Institutional Grants Section. Doubtless you have thought of this, but as one who has been connected with medical education for many years, I wanted to express my thoughts on the matter.

Again, I hope this Bill will pass and that you and your committee will see fit to add pharmacy to Title I, Part B, Section 771. With thanks, and with good wishes, I am

Yours very truly,

RUFUS C. HARRIS, *President.*

MERCER UNIVERSITY,
SOUTHERN SCHOOL OF PHARMACY,
Atlanta, Ga., June 13, 1968.

Hon. JOHN JARMAN,
Chairman, Subcommittee, on Public Health and Welfare,
Rayburn House Office Building, Washington, D.C.

MY DEAR CONGRESSMAN JARMAN: I have just received information from Dr. Charles W. Bliven of the American Association of Colleges of Pharmacy that hearings on H.R. 15757, the Health Manpower Act of 1968, began Tuesday, June 11.

All of us in pharmacy are deeply grateful for the assistance our schools have received and are now receiving under Public Law 89–290. This assistance has been a stimulus to provide schools such as ours the motivation to plan for the future. Our school has been approved for a construction grant and many of our students have received, and now are receiving, scholarships and loans under this program. For this, we are grateful.

Under Title I, Part B of H.R. 15757, I note that pharmacy has been included in the Special Project Grants Section 772. This will be most helpful to all pharmacy schools, but more especially the private schools such as ours who have faced, and are now facing, serious financial straits. It is my understanding that the American Association of Colleges of Pharmacy has requested that pharmacy be included under the Institutional Grant Section 771. I hope your committee will see fit to add pharmacy, as this support would help us tremendously with our enrollment and our efforts to better train pharmacists so that they may take their proper place along with other members of the health team.

Although enrollment at our school has increased over the past few years, support from an institutional grant as this would allow us to increase our enrollment more so that we could meet the needs of pharmacy in this section of the country.

Again, let me thank you and your colleagues for your support of Health Education in our Nation.

Yours sincerely,

OLIVER M. LITTLEJOHN, Ph. D., *Dean.*

AUBURN UNIVERSITY,
SCHOOL OF PHARMACY,
Auburn, Ala., June 13, 1968.

Hon. JOHN JARMAN,
Chairman, Subcommittee on Public Health and Welfare,
Rayburn House Office Building, Washington, D.C.

DEAR REPRESENTATIVE JARMAN: I wish to submit a statement in support of the inclusion of schools of pharmacy in the Institutional Grants Provision of the

Health Manpower Act 1968 (H.R. 15757). I feel additional support for pharmaceutical education is critcial at this time for the following reasons: 1.) With the meager support presently available to schools and colleges of pharmacy, it is becoming impossible to offer competitive salaries in areas such as pharmacology. In this area pharmacy must compete with professional schools receiving institutional grants. This unfair competition in many cases is resulting in an inferior instructional program at a time when great stress in pharmaceutical education is being placed on a sound background in the pharmaceutical and medical sciences. 2) As Dr. Goddard has mentioned in recent addresses, the pharmacist should be prepared to serve the patient and the medical practitioner as a consultant on drugs, drug formulations and adverse drug reactions. Schools and colleges of pharmacy are presently revising their entire curricula to prepare graduates for this expanded responsibility. Funds are needed to provide additional staff in clinical pharmacy and clinical pharmacology. 3.) It is becoming increasingly difficult to maintain minimal standards necessary for continued accreditation without support beyond that presently available. 4.) Funds are presently not available to support a graduate program in the pharmaceutical sciences. An opportunity for graduate study is essential in order to attract and retain an outstanding faculty. 5.) The pharmacy curriculum is considered "high cost" in comparison to other curricula in the University due to the large number of laboratories in which numerous animals, drugs, chemicals, pharmaceutical adjuvants and supplies are consumed and expensive instrumentation must be supplied.

I assure you pharmaceutical education is facing a critical period in which it will be very difficult for it to continue to meet its obligation to the health manpower pool without participation in the Institutional Grants Provision of the Health Manpower Act of 1968 on some basis.

Sincerely,

SAMUEL T. COKER, Ph. D., *Dean.*

LOUISIANA STATE UNIVERSITY
AND AGRICULTURAL AND MECHANICAL COLLEGE,
SCHOOL OF VETERINARY MEDICINE,
Baton Rouge, La., June 13, 1968.

Representative JOHN JARMAN,
Chairman, Subcommittee on Public Health and Welfare, House Committee on Interstate and Foreign Commerce, House of Representatives, Washington, D.C.

DEAR REPRESENTATIVE JARMAN: I have been informed that the Health Manpower Act of 1968 (HR 15757) will be considered soon by your committee. Having been a resident of Oklahoma for twelve years, I am aware of your interest in the advancement of veterinary medical education. Here at Louisiana State University, authorization has been given to the establishment of a School of Veterinary Medicine. This school, when completed, will be one of the 19 in the United States to supply veterinarians to the State, the Region and the Nation.

As you know, Veterinary Medicine is an essential component of health manpower of Louisiana and of the Nation. This branch of medical science is responsible for the control of diseases of all species of animals except man and has made significant contributions to the fund of knowledge that has advanced the health of the nation. Veterinary Medicine must be considered as a National resource and Veterinary Medical Education should receive the same degree of federal support extended to the other health professions including eligibility as recipients for the institutional grants provision of the Act.

We are in agreement with the purposes of this Act and encourage you to give favorable consideration to the continued and expanded federal support for the health and medical sciences.

Sincerely,

EVERETT D. BESCH, *Dean.*

UNIVERSITY OF ILLINOIS,
COLLEGE OF PHARMACY,
Chicago, Ill., June 18, 1968.

Hon. JOHN JARMAN,
Chairman, Subcommittee on Public Health and Welfare,
Committee on Interstate and Foreign Commerce,
Rayburn Office Building, Washington, D.C.

DEAR SIR: My name is George L. Webster and I am Dean of the College of Pharmacy of the University of Illinois, Chicago, Illinois, and I am the immediate Past President of the American Association of Colleges of Pharmacy. I present this statement in behalf of my colleagues in pharmaceutical education and for the purpose of furthering the delivery of more and better health care to the public.

At the outset, I should like to express our appreciataion for the inclusion of colleges of pharmacy in the provisions for Special Projects Grants, Section 772, line 11 of HR 15757. I wish further to describe a concept by which the program of providing more and better health care can be accomplished with the aid of pharmacists and with the financial support which can be made available by including colleges of pharmacy in the proposed Section 771 of HR 15757.

Many conferences during the past three years have emphasized the shortage of health care personnel. Physicians, nurses, and dentists have emphasized the need for others to perform some of the necessary tasks which have traditionally been done by them but which can be done by others who are properly trained and motivated.

Specifically, there is a need for someone who is capable of counseling physicians and dentists regarding the choice of drug and dosage form to accomplish a given therapeutic purpose; a professional with the competence to counsel the public on their choices among drugs and dosage forms which can be purchased without a physician's or dentist's order and which will be compatible with those drugs which may have been prescribed for a primary medical treatment. There is a need for someone qualified to give advice as to the type of medical service needed by an ill person, a directive service which is readily available such as in a neighborhood Pharmacy. There is need for a knowledgeable professional to be consulted on the principles of providing for uncontaminated air and water, the control of communicable diseases, the services available for the recognition and treatment of degenerative diseases, the principles of emergency aid for household poisonings and the location of poison information centers for major catastrophes.

These are a few of the health care tasks which my colleagues and I in pharmaceutical education project for the pharmacist in the near future. We have planned new approaches for the education of students now enrolled in our colleges and new programs for the renewing of attitudes and information for practicing pharmacists.

These new, and we believe, necessary programs are needed now but are beyond our fiscal capabilities because of budgets already committed as far as three years in advance. The financial aid which could become available by being participants in the provisions of Section 771 would allow those colleges of pharmacy which have completed plans to activate them within a short time and stimulate other colleges of pharmacy to develop along this line. All programs developed to date require that students of pharmacy spend a significant time in a hospital ward under the direct supervision of a clinical instructor, studying the regimen of medication used on bona fide patients, analyzing the results as they are recorded on the charts and as they become apparent from interviews with the patients. To be effective, this interaction needs a background of knowledge about pathology, abnormal physiology, diagnostic procedures and behavioral sciences. It will require substantial additions to the budgets of our colleges of pharmacy to provide the added faculty to teach these subjects.

Since pharmacists in community practice will need similar information in order to enable them to practice as effectively as the newly graduated pharmacists, our colleges will need funds to supply it to the professional community.

Colleges of pharmacy have a further obligation to educate scientists who can staff the industry and the federal scientific groups with persons who can create new drugs, new dosage forms and evaluate the relative effectiveness of similar dosage forms.

All of the above obligations of our colleges of pharmacy can be greatly enhanced by being able to participate in the programs sponsored by HR 15757 and, in particular, Section 771.

I respectfully ask that your committee give your approval to the inclusion of colleges of pharmacy in this Section.

GEORGE L. WEBSTER, *Dean.*

[Telegram]

NEW YORK, N.Y., *June 18, 1968.*

Hon. HARLEY O. STAGGERS,
Chairman, Committee on Interstate and Foreign Commerce,
House of Representatives, Washington, D.C.:

The National Student Nurses Association wishes to communicate its support of H.R. 15757 which would extend the Nursing Training Act of 1964 for four years. At our convention last month the representatives of our 60,000-member association of undergraduate students of nursing went on record as believing that it is of paramount importance that nursing schools receiving federal funds be accredited by the National League for Nursing. At the present time 75 percent of nursing students attend NLN-accredited programs. We believe that students of nursing deserve to go to schools which are nationally accredited and that patients too, deserve this protection. Patient care depends on the quality of education. We urge you to include accreditation of nursing schools by the National League for Nursing as a criterion for receiving federal funds.

FRANCES TOMPKINS,
Executive Director, National Student Nurses Association, Inc.

STATEMENT OF THE NATIONAL ASSOCIATION OF STATE UNIVERSITIES AND LAND-GRANT COLLEGES

The National Association of State Universities and Land-Grant Colleges represents 99 major sate universities and land-grant institutions located in all 50 States and Puerto Rico. Its members enroll nearly 30 percent of all students in the nation. They award 44 percent of all medical and dental degrees in the nation and 50.9 percent of those in other health professions. In addition, they contain all but one of the nation's schools of veterinary science. In the future, these institutions will inevitably produce an even greater share of the nation's badly needed health manpower, as much of the expansion of medical education is taking place in state and land-grant institutions.

At its annual meeting in November 1967, our Association, meeting jointly with the American Association of State Colleges and Universities, commended the 90th Congress "for its recognition of the need for substantial programs of support for education, extension activities, and library services in health-related fields through the enactment of the Health Professions Educational Assistance Act, the Regional Medical Programs Act, and significant expansions of existing legislation."

We are pleased that the Congress has continued to demonstrate its interest in these fields by its consideration of the Health Manpower Act of 1968. We particularly commend and endorse the provision of this Act which makes direct operational support available to schools of nursing. The needs of the schools of nursing are such that in its 1968 statement of policy positions concerning recommendations for national action affecting higher education, the Association urged that this kind of support be extended to these schools.

The Association is also pleased to note that H.R. 15757 contains provisions for extending the eligibility for special improvement grants to schools of pharmacy and veterinary science. This too was a matter of concern at our most recent annual meeting.

Our member institutions, however, would like to see the committee carry this extension one step further. They are also anxious to see schools of pharmacy and veterinary science eligible for institutional, basic improvement grants. In the words of our 1968 policy statement, "We note with concern that eligibility for assistance for the schools of pharmacy and veterinary science is limited to construction aid. We urge corrective legislation to end this discrimination to major health-related fields, especially as concerns eligibility for basic and special

improvement grants for support of the institutional function at schools of pharmacy and veterinary science."

In conclusion, we support and commend the general objectives of H.R. 15757 and hope that the modification we are suggesting can be incorporated into this legislation.

STATEMENT OF JESSE D. DERRICK, D.V.M., PRESIDENT, THE GEORGIA VETERINARY MEDICAL ASSOCIATION

The Veterinary Profession, while the oldest of the medical professions, is probably the least understood insofar as the importance and contributions to human health and welfare.

Most familiar to the average citizen is the professional care provided for the animal population. The care of animal pets in our society is an essential and much appreciated service, but the major contribution to man's well being has been the high level of professional care provided to the livestock population which serves as a source of food. Within recent years an additional responsibility of the veterinary profession has emerged to the forefront—participation in biomedical research programs to study and resolve the health problems of man.

Within this sphere of professional activity, the Doctor of Veterinary Medicine assumes two major roles. First he functions as an independent scientist studying disease processed in animals and providing basic biological data and knowledge which can be extrapolated to man. Each of us is already benefiting as a result of knowledge gained through the use of animals and the future resolution of major health problems such as cancer, heart diseases, mental health, and population control will, to a significant degree, depend on the availability of well trained scientists in veterinary medicine.

Secondly, the increased use of animals as experimental models for biological research has placed a demand on the veterinary profession which far exceeds the ability of veterinary schools to train adequate members in the facilities presently available according to a recent survey of the Institute of Laboratory Animal Resources of the National Academy of Science. There are over 2000 institutions and facilities in the United States whose programs require the use of research animals.

All of these need access to veterinary support by veterinarians specifically trained in the specialty of laboratory animal medicine, and, at the present time there are only 106 who have been certified by this Specialty Board. It is probable that the entire output of veterinarians from all the schools in the United States would be required to meet the existing need for veterinarians in laboratory animal medicine, and this is only one of the specialties in biomedical research dependent on the knowledge and special skills of the veterinary scientist.

In addition to vastly increased activities of veterinarians in biomedical research, the recent passage of meats and poultry inspection regulations to protect the consumer requires increased number of veterinarians.

Further requirements are compounded by the increased need for animal protein food stuff in the world calls for more veterinarians to control diseases. The World Food Agricultural Organization estimates that a 50% reduction of losses from animal diseases in the developing countries is a realistic goal and that it would result in 25% increase in animal protein produced. This reduction in animal disease losses can come about only by an increased supply of veterinarians educated to conduct biomedical investigations to solve many of the problems resulting in death of animals and likewise in man where the diseases are transmissible to man.

The present occupations of veterinarians in the USA are as follows: 7 percent in large animal practice, 19 percent in small animal practice, 31 percent in mixed practice for a total of 57 percent of the veterinarians in the USA that are conducting practice. The remaining 43 percent are engaged in other activities such as teaching, research, consumer regulatory work for the government and industry.

The need for veterinarians considerably exceeds the productive capacity of the present educations system. A long range forecast indicates that 40,000 veterinarians will be needed by 1980. This figure is 12,000 in excess of what our present veterinary colleges can provide. Obviously the additional 12,000 veterinarians can be educated only by enlarging existing schools and building new schools.

There are 18 schools of veterinary medicine for the 50 states of the USA and each serves more than the state in which it is located. The School of Veterinary

Medicine, University of Georgia serves a total of five states: Georgia, South Carolina, North Carolina, Virginia and Maryland. Veterinary schools should be viewed as a national resource instead of a state resource and therefore partly supported by federal dollars in supplement to the appropriation from the state in which the school is located.

The demand for entrance into the professional program of the veterinary schools far exceeds the capacity of the existing schools. For example, the following numbers of eligible preveterinary candidates were interviewed for entry into the School of Veterinary Medicine at the University of Georgia:

	1967	(1968)[1]
Georgia	49	(53)
South Carolina	10	(14)
North Carolina	10	(13)
Virginia	24	(30)
Maryland	28	(46)
Total	121	(156)

[1] Tentative.

The figures above in parentheses are approximately for 1968 because interviews are now in process and the academic year for determining eligibility is not completed. All of the above candidates have exceeded the average college student grade point and have survived elimination on personal interview examinations conducted within each state. From this total the University of Georgia accepted 64 students for the entering class of 1967; not all of these will be graduated because of the normal attrition rate.

If federal assistance in the form of an institutional grant were available for improving our present educational plant, and if a constructions grant were available for building an addition to the present schools of veterinary medicine, we would have matching state funds to increase the size of our entering class to a minimum of 85 students for an increase of 33 percent.

From the above discussion the critical importance of H.R. 15757 (Health Manpower Act of 1968) in support of veterinary education is obvious for the Southeastern States. This bill would provide vital support for construction grants, student loans, and scholarship grants in the 18 schools of veterinary medicine in these 50 states.

It is unfortunate that veterinary schools have not been declared eligible to receive institutional grants under H.R. 15757 in view of the direct contribution of veterinarians to biomedical research, public health and consumer protection. The importance of educating veterinarians to protect the health of man is incontravertible. We cannot emphasize too strongly the importance of making schools of veterinary medicine eligible for institutional grants under the Bill.

Statement of Area Ten Community College, Cedar Rapids, Iowa

INTRODUCTION

In reference to H.R. 15757 (Staggers, W.Va.) which proposes to amend the Public Health Service Act, there are areas of nursing and allied health training which need to be considered especially as they relate to their educational environments. It was indicated in Titles II and III of the proposed legislation that both public and nonprofit private agencies will be eligible for grants, but there is no specific mention of public comprehensive community colleges or area vocational-technical colleges.

IOWA LEGISLATION

With the establishment of sixteen of these area schools in Iowa by the sixty-first General Assembly in 1965, it has become a reality to serve not only needs of adults in health occupations education but also education and training needs in a variety of occupations. The law, in fact, has been termed a model in its com-

prehensive approach toward serving all adults. Specifically, the Iowa law provides for the following:

1. The first two years of college work including pre-professional education.
2. Vocational and technical education.
3. Programs for in-service training and re-training of workers.
4. Programs for high school completion for students of post-high school age.
5. Programs for selected high school students in vocational-technical education.
6. Student personnel services.
7. Community services.
8. Vocational education for persons who have academic, socio-economic or other handicaps.
9. Training, re-training and all necessary preparation for productive employment of all citizens.
10. Vocational and technical education for persons who are not enrolled in a high school and have not completed high school.

GROWTH AND DEVELOPMENT OF IOWA HEALTH OCCUPATIONS EDUCATION

Throughout the nation there continues to be a shortage of qualified workers who can care for the sick in hospitals, nursing homes, clinics, doctors' offices and other health agencies. In recent years a restructuring of traditional health-care patterns has taken place. The greatest single change is the emerging role of health care personnel prepared in vocational-technical programs in which they achieve the necessary knowledge and skills to function as effective members of the health-care team. To date, 204 health occupations have been identified and new ones are constantly emerging.

In 1958 the Division of Vocational Education, Iowa Department of Public Instruction initiated an agreement and contracted with the University of Iowa to provide state consultant services for health occupations education in Iowa. The State consultant staff hold University of Iowa faculty appointments and compose the Program in Health Occupations Education in the University. This program is housed on campus and is promoting and implementing a strong health occupations education state-wide program.

The expansion of health occupations education in the many states has been enhanced by partial reimbursement with the George-Barden Act of 1956 and the Vocational Education Act of 1963. In addition, there are states which conduct some health occupations education programs federally reimbursed only with Manpower Development and Training Act funds. In Iowa, however, arrangements have been made with the State Employment Security Commission whereby any person qualifying for Manpower Development and Training Act funds may be admitted to a program funded under the Vocational Education Act provided he also meets the admission requirements of the program. Table I shows program growth in Iowa.

The Iowa Division of Vocational Education, like its counterparts in other states, cooperates with public educational institutions throughout the State to provide programs which prepare graduates for employment in various types of health occupations.

Presently in Iowa, 910 students are enrolled in 34 such preparatory programs of one and two years in length and 584 students have taken advantage of the supplemental programs. In the 1968–69 school year, several of these programs will increase enrollments and some will admit an additional class at mid-year. Also, during this same year 8 new preparatory programs will be in operation. Multiple 4-week pre-employment programs for nurse aides and orderlies are also offered throughout the State.

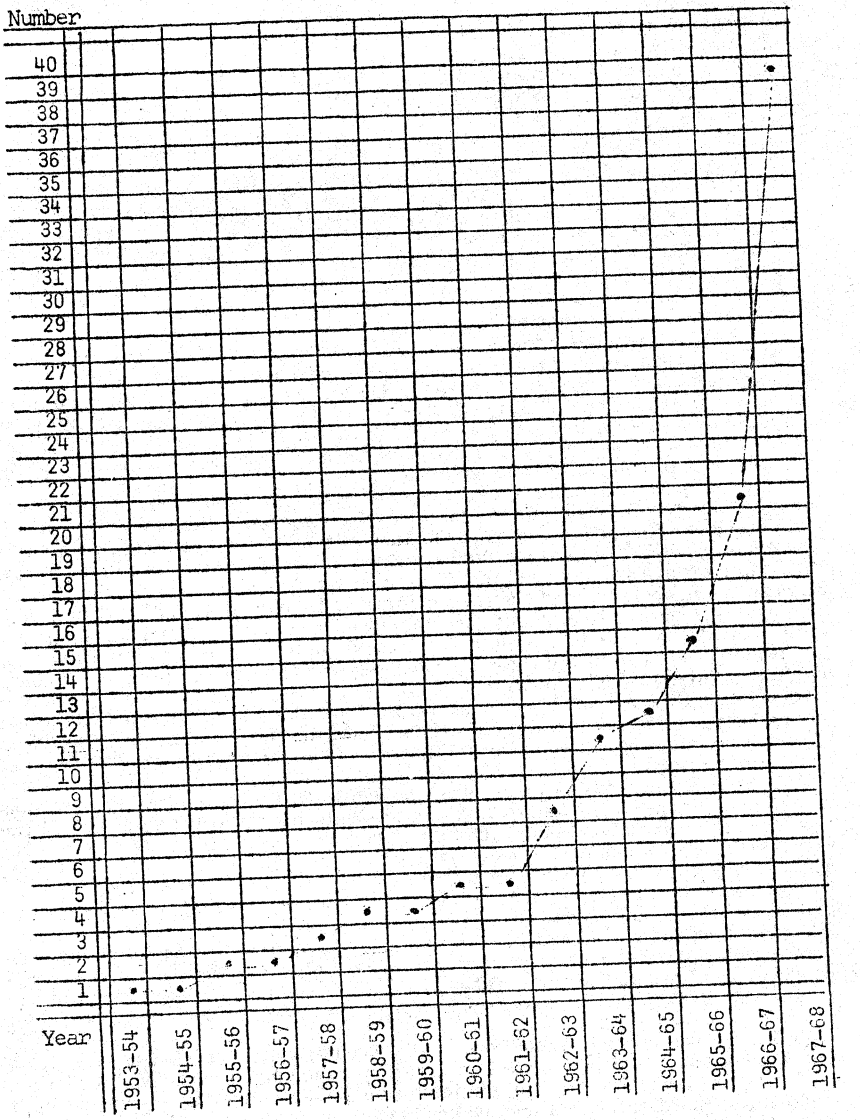
Health occupations education programs in Iowa are administered by community colleges and area vocational-technical colleges. All programs are approved by the Iowa Board for Vocational Education and those preparing practical nurses and associate degree nurses are also approved by the Iowa Board of Nursing.

While uniform standards, policies, and procedures are reflected in these programs, they have sufficient flexibility to allow tailoring to each local situation. All facets are controlled by the administering public educational institution. It employs the coordinator and instructors and is responsible for the provisions of adequate resources and facilities. Appropriate clinical facilities are made available through contractual agreements between the administrative agency and hospitals and other local health agencies.

IOWA DEPARTMENT OF PUBLIC INSTRUCTION
DIVISION OF VOCATIONAL EDUCATION
HEALTH OCCUPATIONS EDUCATION SECTION

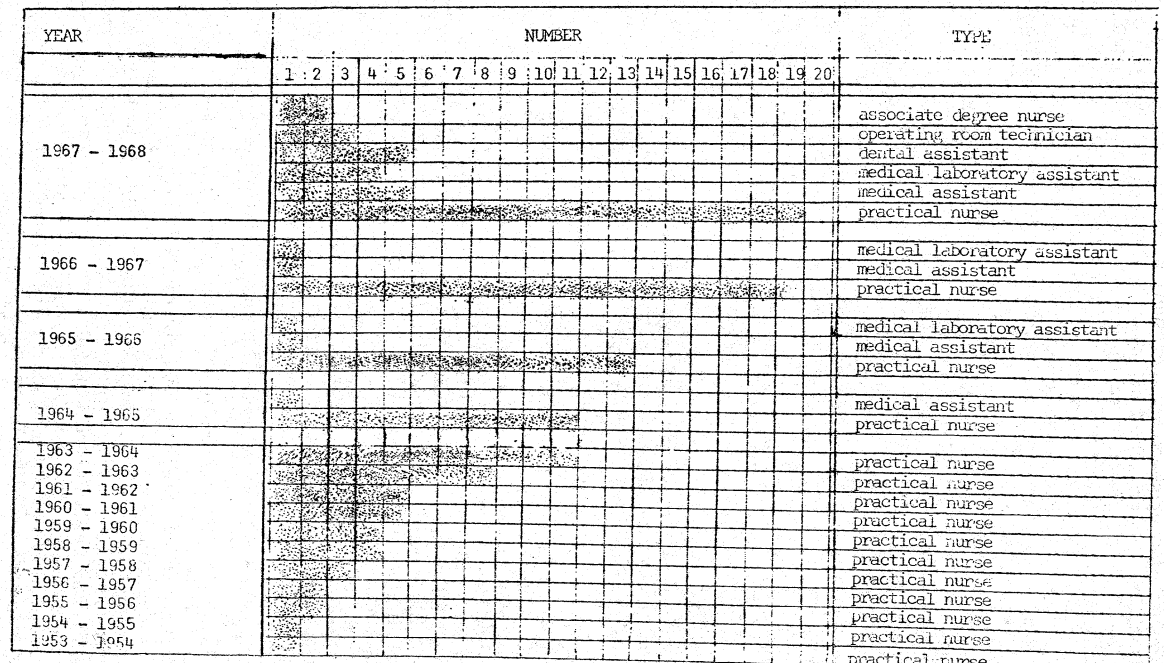
TABLE I

TOTAL NUMBER OF PREPARATORY HEALTH OCCUPATIONS EDUCATION PROGRAMS IN IOWA BY YEAR



IOWA DEPARTMENT OF PUBLIC INSTRUCTION
DIVISION OF VOCATIONAL EDUCATION
HEALTH OCCUPATIONS EDUCATION SECTION

NUMBER OF PREPARATORY HEALTH OCCUPATIONS EDUCATION PROGRAMS IN IOWA BY TYPE BY YEAR



State and local advisory committees are used. Their members advise in matters pertaining to the program and serve as liaison between the community and the program. With representation from interested professional, paraprofessional and lay groups in the community, these committees contribute to program development, implementation and evaluation.

Doubtless, the growth of health occupations education programs will continue in the years ahead. In Iowa the health occupations education program moves ahead with multiple activities, interests, and an identifiable degree of success and effectiveness.. There continue to be unmet needs for heatlh workers in our state. While the gap between need and preparation is still great, it has and will be further lessened if we continue to be persistent in improving and expanding quality programs.

Of concern the past two years is that the practical nursing programs have had far more qualified applicants than they are able to accept. This trend persists despite efforts to provide adequate counseling and guidance to encourage preparation to the highest level of abilities. By their own choice and with persistence, some select practical nursing who are potentially successful in programs preparing students to become registered nurses. Hopefully with the present and extended development of Associate Degree programs in our State, this situation will improve and larger numbers of nurses can be prepared in both levels of preparation.

Dr. William H. Stewart, Surgeon General, U.S. Public Health Service, has estimated that to meet the health care needs of our society there must be 10,000 health workers prepared *each month* for the next ten years. Despite the growth in educational programs in health occupations to date, further expansion seems imperative.

Vocational education has a vital role in helping to meet this challenge. Through further expansion of quality health occupations education programs it will continue to meet the objectives of its primary two-fold purpose: (1) to prepare persons for gainful employment, (2) to assist in meeting the needs of our society.

AREA TEN COMMUNITY COLLEGE: A COMPREHENSIVE APPROACH IN IOWA

Area Ten Community College, one of sixteen merged area colleges, comprising seven counties in Eastern Iowa, has developed as a comprehensive multi-purpose institution. Included in its broad spectrum of opportunities are the largest number of Health Occupations Education offerings in the state. In cooperation with the University of Iowa and the Office of the Chief Consultant of Health Occupations Education for the State Department of Public Instruction, Area Ten is building towards a comprehensive Health Occupations Education Center which will initiate and implement regional demonstration programs, as well as serve the continuing needs of adults in the area. Current programs either in operation or beginning this fall at Area Ten, include Environmental Assistant, Dental Laboratory Technician, Orthopedic Assistant, Occupational Therapy Assistant. Practical Nursing, Medical Assistant, Nurse Aide and Dental Assistant. Programs being developed for initiation in a year include Medical Laboratory Assistant, Immediate Care Assistant, Associate Degree Nursing (both pre-professional and RN), Nursing Home Administrator and Social Work Assistant.

HEALTH OCCUPATIONS CENTER: NEED FOR FUNDS

These cluster programs and others yet to be developed form common cores of learning experiences and offer broad occupational opportunities for adults of varying abilities, interests, and aptitudes. This is in keeping with the college's open-door policy which in turn provides developmental alternatives according to individual needs in certificate, diploma, and associate degree programs. Program development costs, as well as instructional and equipment expenses, have been partially reimbursed through the Vocational Education Act of 1963. These funds, however, do not allow for construction, student loans, scholarships, and so forth, which are proposed for funding in Mr. Stagger's bill.

Obviously federal assistance, especially construction grants, is vital to new and developing institutions such as Area Ten Community College, as well as other public community colleges and vocational-technical colleges throughout Iowa and the nation.

When looking, simultaneously, at health service needs and human resources to provide health workers, it becomes evident there is potential for, and merit in, a more effective correlation of human resources with employment opportunities. A much better utilization of all levels of human resources can be accomplished through suitable and adequate preparation of health service workers. It is imperative that this preparation be provided in quality educational programs administered or supported by an agency firmly committed to the educational role.

1. The Economics of Education—Current studies have been initiated to compare the social, governmental and individual investment in education with the return on this investment to society and the individual. As educational programs at all levels seek a progressively larger share of the available public resources, there are many searching questions pertaining to priorities for which public education funds will be allocated. To date, very few cost analysis studies have been attempted which would identify the most beneficial or economic utilization of public education funds in view of personnel prepared. Based on principles established in other areas and studies in this field, indications are that a larger, more comprehensive program will prove to be by far the most efficient structure.

2. The Changing Structure and Role of Public Education—There have been dramatic changes in the demands on the public education system in recent years. Society expects this system to provide appropriate educational programs for people of all ages, levels of ability, and interests. A significant shift in organizational structure and a marked expansion in type of educational programs are well underway in an attempt to fulfill this expectation.

Public colleges and universities have long provided the occupational preparation for the health professions at the baccalaureate and higher degree levels. A similar obligation, to provide preparation at less than professional level for the great majority of our young people and adults who will not complete a college degree, is being recognized in the emerging role of public education. This emerging role prompted the need for larger population and financial bases to provide an adequate student flow. The result has been a significant organizational change, the establishment of educational programs on an area or regional base.

A major role of this comprehensive community college or area vocational-technical college is to provide educational programs which are occupationally oriented. A number of these are preparatory programs offered parallel to the first year or two of college; others, usually of shorter duration, are for retraining and/or upgrading.

3. The Shift in Orientation for Health Occupations Education—The trend to shift Health Occupations Education programs from service institutions (hospital, clinic, or other health agency) to an area or regional educational institution is compatible with the role of the comprehensive community college or area vocational-technical college.

Simultaneously, a basic change in philosophy is taking place. This philosophy embraces the principle of charging educational costs to educational institutions supported by the public tax base. Traditionally, programs to prepare health occupations personnel emerged in service institutions with a subordinate role in education. The costs of such programs have necessarily been included as service charges and therefore borne by patients. Many programs operated by service institutions have been discontinued due to financial stress. Also, the mobility of our present work force precludes the retention of those trained in a particular service institution long enough for them to return services commensurate with the investment made. Shifting the cost to a broad educational base seems appropriate and more compatible with this increased mobility of our labor force.

There are additional advantages to support this shift of Health Occupations Education to community colleges or area vocational-technical colleges. Because of the size and numbers of inter-related programs, the proportionate overhead and administrative costs will not only be decreased but they will be borne by education. The potentially larger pool of recruits, with proper guidance, will provide a steady flow of appropriate applicants. The socially accepted objective of "going to college" can be realized and status derived from attending this type of institution, rather than a service-oriented institution, will likely enhance enrollments.

LEGISLATION CONCERNS

Our concerns in regard to legislation are several:

1. that the Public Health Service Act not be limited only to associate degree programs in the various nursing and allied health occupations programs, but rather that it allows for Health Occupations Education Centers like the one being developed at Area Ten Community College in which certificate, diploma and associate degree programs form interwoven clusters designed to meet the wide diversity of adult needs. This is not only efficient and economical in terms of cross utilization of space, equipment, and instructors, but also allows more choices to adults according to their individual interests and abilities.

2. that the public comprehensive community colleges and vocational-technical colleges be recognized as the prime movers in meeting the education and training needs for para-medical and allied health occupations, and that strong provisions for them be written into the Public Health Service Act.

(*a*) The trend and impetus has already been established in this direction and is recognized by professionals in Health Occupation as being valid.

(*b*) The policy of private hospital programs of requiring health occupations trainees to spend extended pediods of time in repetitive so-called clinical training is economical neither to the hospital patient nor to the student, although it allows the hospital to hold down employee costs. Instead it is proposed that public educational institutions using a broader tax base can educate more economically in a shorter period of time and yet provide sufficient clinical training by contracting with public and private non-profit hospitals.

3. That the business of education, particularly the education and training of adults at the sub-baccalaureate level who have been largely overlooked by private institutions because of social, economic, or other handicaps belongs in the public community colleges and vocational-technical colleges created and committed to serve these citizens. By the same token, such educational institutions would be unjustified in opening in-patient hospital facilities.

CONCLUSION

In summary, the responsibility for designing and maintaining innovative health occupations education programs, in order both to alleviate the shortages in health occupations and, perhaps more importantly, to provide economical education for all people, has already been assumed by public community and vocational-technical colleges, especially those mandated by legislation like that of Iowa. Much progress has been made considering limited resources.

It would seem to run counter to the spirit and intent of previous legislation not to emphasize the public community colleges and vocational-technical colleges, both from the standpoint of social concern and economics in the written form of the Public Health Service Act as it finally evolves.

Respectfully submitted,

ELIZABETH KERR,

Director of Health Occupations Education, Division of Medical Services, the University of Iowa, Chief State Consultant to Health Occupations Education Section, Vocational Education Branch, State Department of Public Instruction.

Dr. S. A. BALLANTYNE,

Superintendent, Area Ten Community College.

STATEMENT OF CLARENCE R. COLE D.V.M., PH. D., DEAN, COLLEGE OF VETERINARY MEDICINE, THE OHIO STATE UNIVERSITY, COLUMBUS

SUMMARY

Veterinary medicine is one of the health professions concerned with the health and well-being of animals and man, the control of diseases transmissible from animals to man, and discovery of new knowledge in comparative medicine. The broadening role of professional activity pertaining to human health, coupled with a rapidly increasing population and the resulting demand for foods of animal origin, is bring to emergency proportions the already critical shortage in the nation's supply of veterinary medical manpower.

A large part of veterinarians' professional activity is directed toward protection of the consuming public. One primary responsibility of veterinarians is the prevention of human illness derived from animal sources. In response to the nationwide demand for consumer protection, Congress in 1967 passed the Wholesome Meat Act (Public Law 90–201) and the 90th Congress will consider at least three bills pertaining to inspection of poultry and poultry meat products. The Laboratory Animal Welfare Act of August 24, 1966 (Public Law 89–544) has placed vast responsibilities upon veterinarians to initiate and execute a nationwide program for laboratory animal welfare. The above new national programs demand hundreds of veterinarians at a time when there is already a critical shortage of veterinary medical manpower.

Studies have indicated the need for doubling the number of veterinarians by 1980 and more than tripling the number of veterinarians in several fields of specialization in veterinary medicine by 1975.

The gigantic task for increasing the number of veterinarians is currently the responsibility of the eighteen veterinary medical schools and colleges located in seventeen states of our nation. Veterinary medical colleges have been unable to capitalize upon well established new educational techniques because they were denied the educational improvement grants provided to other health professional colleges under Public Lw 90–290. Insufficient funds have handicapped educator's attempts to adopt modern methods of education—such as classroom use of computers, closed circuit television, and autodidactic laboratories—to veterinary medical education. Achievement of minimal goals for increased enrollment and maintenance of the quality of professional education requires vast increased financial support. Experience has clearly demonstrated that adequate funds for development and expansion cannot be provided by the seventeen states which are currently attempting to educate veterinary medical personnel for all fifty states. Facilities and operational support are not adequate even for the number of students currently enrolled in the veterinary medical colleges in this country.

If enrollment is to be increased, it is imperative that veterinary medical colleges be included in future legislation relating to the following support of education in the health professions: educational improvement grants, construction of teaching and research facilities, institutional support for innovations in veterinary education, and student loans and scholarship grants.

THE ROLE OF THE VETERINARIAN IN OUR SOCIETY

The activities of all veterinarians contribute to public health. Veterinary medicine is concerned with the health and well-being of animals *and* man. It is concerned with the control of diseases transmissible from animal to man and with the discovery of new knowledge in comparative medicine. During the past twenty-five years, activity in comparative medicine and the biomedical sciences has increased at a spectacular rate and has greatly expanded the role of the veterinary medical profession.

Public health responsibilities of the veterinarian

A large proportion of veterinarians' professional activity is directed toward protection of the consuming public. The primary objectives of the veterinarian are to prevent human illness derived from animal sources and to protect the health of animals.

Veterinarians carry a large responsibility in the field of public health. Many state and municipal codes require at least one veterinarian on the board of health. According to a 1960 report of the Ohio Department of Health, veterinarians have the largest representation of any professional group serving on local health boards.

Veterinary medicine provides specific benefits to human health in three major ways: (1) Removal of sources of infection to man through eradication or control of those animal diseases transmissible to man, (2) Development of preventives or treatments that can be adapted for use in man, and (3) Development of food hygiene programs that protect the consumer against food-borne diseases.

Removal of sources of infection.—More than 100 diseases of animals are transmissible to man. In 1945, 10,000 cases of rabies were reported in animals, and thousands of people in our nation were treated for this deadly disease. As a result of research and training, the incidence of this disease has dropped more than 50 per cent in the past fifteen years, and 1967 marks the first year

in our history with no human deaths from rabies. Veterinarians vaccinate seven million of the nation's fifty million dog and cat population annually. Research is under way to develop means for elimination of rabies in bats and other wildlife.

Many viral diseases of man are transmitted by insects, and the survival of the virus depends upon birds and other animal hosts. Three types of insect-borne virus encephalitis are recognized in the United States. Veterinarians determine that species of animal life that are essential reservoirs of infection and those that form necessary links in the animal-human infection chain.

Development of Treatment of Preventives.—Veterinary medicine, formerly oriented to the study of animal diseases for the benefit of animals thmselves, since 1940 has been oriented to comparative medicine and the biomedical sciences. Advances in veterinary medicine contribute materially to human welfare through the protection of man against certain transmissible diseases, the insuring of a stable economy for production of essential food and fiber, and the safeguarding of the wholesome supply of food products of animal origin.

Today, veterinary medicine is faced with the additional challenge of providing adequately trained manpower for research where animals serve as biological models for studies of diseases that primarily affect man, and whose solution can only indirectly benefit animals.

Food Hygiene.—In response to the nationwide demand for consumer protection, Congress passed the Wholesome Meat Act in 1967 (Public Law 90–201) and Congress will consider at least three bills pertaining to inspection of poultry and poultry meat products. The above legislation requires hundreds of veterinarians to implement the new program. Veterinarians participate in food hygiene research and advise and assist in the development and maintenance of recommended ordinances regarding milk sanitation, poultry inspection, and sanitation of food service establishments. Animal diseases are of public health significance because some are transmissible to man through milk, meat, poultry and other animal food products. Food products may also serve as vehicles of human infections, namely, typhoid fever, diphtheria, scarlet fever and streptococcal infections. The American public takes wholesome food supplies for granted and does not realize that often it is only through the activities of veterinarians that foods of animal origin come from healthy animals and are inspected to insure their safety before reacihng the consumer.

In fiscal year 1966, 104,988,350 animals were slaughtered under Federal Meat Inspection. Veterinarians direct all slaughtering and administer the over-all meat inspection program, as well as the humane slaughter law, which requires that animals be rendered insensible before slaughter begins. During 1966, over 264,992 animals at slaughter were condemned by veterinarians as unfit for human consumption. In addition, over 9,765,514 animal carcasses were temporarily retained until diseased or affected portions were removed.

Veterinarians in the Bureau of Veterinary Medicine of the Food and Drug Administration are concerned with the protection of human health. They develop scientific methods for detecting worthless or harmful drugs and assure that foods, drugs, and cosmetics are wholesome, safe to use, made under sanitary conditions, and truthfully labeled. They determine the safety or danger of additives (such as antibiotics and other growth stimulating drugs) in feed consumed by food-producing animals to insure that meat, milk, or eggs are safe for human consumption.

Unfortunately, the shortage of veterinarians avalable for food inspection has curtailed the federal, state, and municipal food inspection programs and has sometimes allowed adulterated, unwholesome, mislabeled, and contaminated food to reach the consumer.

A wide variety of chemicals are used to protect animals and crops against insects. Many of these chemicals leave a toxic residue which is cumulatively deposited in the animal. When the residue exceeds acceptable levels of safety, the affected product is disposed of in accordance with good food hygiene principles.

Protection Against Importation of Foreign Diseases.—The risk of introducing foot-and-mouth disease into the United States grows with increasing travel abroad and the prevalence of the disease throughout much of the world. Great Britain is experiencing the most severe outbreak of foot-and-mouth disease in its history. Over 2,300 herds (415,800 animals) died or were slaughtered from the beginning of the outbreak to February 1968 in a campaign to eradicate this devastating disease.

Through inspection of imported animals, poultry, and all animal by-products, veterinarians prevent entry of foreign diseases into the United States. Of the 981,860 animals and 2,950,829 birds presented for import during 1967, 43,961 animals and 9,365 birds were refused entry because they were carrying diseases contagious to man and animals. During the same fiscal year, veterinarians inspected and certified over 69,000 animals for export to foreign countries.

More than 15.6 million pounds of meat and meat food products from foreign countries were condemned or refused entry in 1967.

Veterinarians in research

Three quarters of all veterinary medical prescriptions written today are for drugs that were non-existent twenty-five years ago. Contributions to knowledge in comparative medical sciences since World War II are greater than those made in all previous years of history.

The activities of veterinarians holding research or service positions in government and industry are not as well known to the public as those services rendered by the veterinarians engaged in farm practice or operation of small animal hospitals. Yet one-third of the veterinary profession is engaged in the former category of activty.

In 1965, it was estimated that veterinarians in the animal health industry (pharmaceutical and biological) alone controlled a segment of industry valued at $600 million annually. Veterinarians hold positions of leadership in approximately 310 different companies operating in the chemical and pharmaceutical industries of the United States.

Although many of these individuals serve the areas of animal health, veterinarians play a vital role in industrial research and development of drugs and other chemicals consumed by man. The greatest recruiting fervor is in the field of toxicology. Veterinary toxicologists are primarily concerned with developing knowledge of the toxic potential of chemical substances, and their fate in the environment, in order to prevent poisoning. Veterinarians serve as directors of toxicology research for many of the pharmaceutical companies developing drugs for human use. These include companies such as Eli Lilly, Upjohn, Huffman LaRoche, CIBA, Warren-Teed, Pitman-Moore, Wm. S. Merrell, Sandoz and Syntex.

Veterinarians have pioneered in toxicologic research concerning space; environmental hazards; pesticides; toxicants in food, air and water pollution; and chemical warfare agents.

Veterinarians' activities include research in the discovery and development of drugs and other chemicals to be used as food additives in the treatment of human and animal diseases. After a new chemical is synthesized, the veterinarian is responsible for determining the potential value of the chemical in treatment of disease. Before the chemical can be released for human trial, he must determine, through a long series of testing in many species of animals whether or not the chemical is toxic.

Veterinarians in the biologics industry are engaged in discovery and development of new vaccines, serums, and other biological products of animal origins. Veterinarians have the responsibility not only for determining the value of potential products, but also for assuring both the safety and potency of the products. Federal veterinarians supervise activities in more than seventy companies licensed to produce biologics for disease prevention and as treatment.

Study of spontaneous disorders in lower animals provides information more relevant to human disease than does the study of artifically-produced diseases in laboratory animals. A number of spontaneous models for human diseases have been delineated by veterinarians, viz, systemic lupus erythematosus in dogs and mice, porphyra, in cows and pigs, atopic diseases in dogs, and balding in primates other than man. Veterinarians are studying animals with naturally occurring diseases (such as diabetes, heart disease, cancer, and blindness) which are identical to their counterparts in man.

In December 1966, a faculty group in the College of Veterinary Medicine at the Ohio State University made an important breakthrough in cancer research. They discovered that leukemia is transmitted through the air and that animals inhaling the virus develop leukemia.

Veterinarians in the Army and Air Force

Veterinary medical officers of the Armed Forces play a major role in preventive medicine and environmental health by protecting the health of servicemen stationed throughout the world. The functions of a military veterinarian

are similar to those of the veterinarian in civilian life. His training in the medical sciences enables him to participate in preventive medicine and research activities.

The military veterinarian has paralleled his physician counterpart in contributing to human health and welfare through his responsibility for inspection of all foods of animal origin consumed by the serviceman. The Department of Defense has assigned world-wide food inspection responsibilities to the military veterinarian. In addition, he has responsibility for disease control through appropriate food handling, inspections of community areas, utilities and waste disposal, and rodent conrtol.

Because his training in medical science is parallel to that of the physician, the Doctor of Veterinary Medicine assumes preventive medicine research functions in addition to those which are related to foods of animal origins. Large numbers of veterinarians in the military service are engaged in research. For example, research on the solution of high altitude problems by using animals and vehicles projected into space; acceleration and decelerations; space flights; and space travel. Through animal experimentation, veterinarians determine the effects of radiation upon animals and, by extrapolation, upon man. Other examples are flight and ground feeding research; preservation of foods by radiation; research designed to protect against biological warfare; research on diseases transmissible from animals to man; and world-wide laboratory support.

Veterinarians in laboratory animal medicine

The laboratory animal industry is valued at nearly $500 million. Original research data using animals in space prior to manned flights is an example of the veterinarians' participation. New treatments for disease, new vaccines, and new surgical procedures are first developed by veterinarians on animals to demonstrate their value and safety before such drugs or procedures are used for man.

Animals used for biomedical research total 37 million annually. Veterinarians are using millions of animals to study cancer-causing and cancer-inhibiting chemicals, to measure the effects of radioactivity, and to study the reactions of living organisms in space. Laboratory animals constitute a vital resource for medical and other biological research. Animals must be painstakingly calibrated and standardized as the most sensitive instrument in many health research projects. Loss of laboratory animals from disease or malnutrition can have an impact far beyond the cost of the animals' replacement. It can meet setbacks in scientific efforts in which millions of dollars are invested.

One of the growing phases of veterinary service is to provide healthy, uniform laboratory animals, for these represent indispensable elements in biomedical research. Veterinary research is concerned with the diseases common to man and animals, and recognizes the usefulness of animals for experimentation in the study of human health problems. Advances in animal health research often open doors to the solution of human disease problems. Generally, research in veterinary medicine makes contributions to human health and well-being as well.

The magnitude of the role of veterinarians in laboratory animal medicine is illustrated by the budget and staff of Dr. Zinn, Director of Laboratory Animal Resources at the National Institutes of Health. He has a budget of $3.6 million and a staff of 300 employees.

Veterianarians in large animal practice

Veterinary research, clinical practice, public health, and regulatory activities in the United States have made possible an abundance of safe, wholesome protein foods. The average per capita consumption of food in the United States exceeds 1500 pounds per year. Over 650 pounds per capita are foods of animal origin.

Veterinarians are currently responsible for the health of 108.4 million cattle, 100 million hogs, 30 million sheep, 2.5 million poultry, and 3.1 million horses. Estimates of the value of these animals are: cattle, $12 billion; swine, $1.2 billion; sheep, $201 million; and poultry, $480 million.

Veterinarians in small animal practice

These veterinarians, recognizing the close association between pets and their owners, are constantly striving to eliminate or minimize diseases—such as rabies, psittacosis, and tuberculosis—which might be transmitted to human beings.

They provide service to 25 million dogs, 20 million cats, and an estimated 20 million caged birds in the United States.

THE INCREASING NEED FOR DOCTORS OF VETERINARY MEDICINE

The national demand for veterinarians has increased as the population has increased and as the veterinarian's role in our society has broadened. The nation's present total of 24,328 D.V.M.'s cannot fulfill the current responsibilities of the veterinary medical profession.

Recent new legislation has placed extensive additional demands upon veterinarians. Hundreds of veterinarians will be required to carry out the requirements of the 1967 Wholesome Meat Act and the 1966 Laboratory Welfare Act. Several hundred more will be required when bills on poultry inspection, currently before Congress are enacted.

As our population increases and creates a demand for a greater food supply, control of animal diseases becomes imperative. Current estimates indicate the need for a 50 per cent national increase in food production by 1975 and a 200 per cent increase by the year 2000.

The federal government places a $2.8 billion annual price tax on livestock and poultry losses due to infectious and non-infectious diseases, insects, parasites and nutritional disorders. In addition to this actual loss, more than $245 million was spent in 1959 for pharmaceuticals, biologicals and other treatments for animal use.

Industries ultimately affected by loss of livestock through disease include meat packers, tanners and animal fiber producers. The meat packers report an estimated $31 million loss due to condemnation of carcasses in 1960.

Nationally, disease causes a loss of $6.73 per head on feed lot cattle going to market. In Ohio alone, the annual loss exceeds $3.5 million.

An increasing proportion of doctors of veterinary medicine annually enter biomedical research and service in salaried positions in industry and government. According to a survey conducted by the American Veterinary Medical Association, 45.4 per cent of all veterinarians who graduated in 1964 entered health activities other than private practice. (In contrast, only 29 per cent of the 1964 newly graduate physicians entered fields of health activities other than patient care.) Many enter professional health-related activities in areas such as (1) public health; (2) laboratory animal medicine; (3) U.S. Army and Air Force; (4) animal disease control agencies; (5) biomedical research in government, universities, and industrial laboratories; (6) meat inspection service; (7) World Health Organization and Food and Agriculture Organization of the United Nations; and (8) The Pure Food and Drug Administration.

The competition for doctors of veterinary medicine is evidenced by the extensive advertising of industrial firms and the federal government in *Science* magazine and in the professional veterinary medical journals. A shortage of veterinarians has made it impossible for the pharmaceutical and chemical industries to employ adequate numbers to conduct research designed to discover, develop, and test drugs and chemicals for food and cosmetic additives and for treatment and prevention of disease. In the field of toxicology, this shortage has reached emergency proportions. With over 3,000,000 chemicals known, and new ones being synthesized at the rate of 7,000 a year, far more veterinary toxicologists are needed than presently can be trained by the colleges of veterinary medicine. The international tragedy which occurred a few years ago, when many babies were born without hands or feet because pregnant mothers consumed thalidomide, could have been averted by animal testing of the compound "thalidomide" prior to human use.

The "Community Health Concept" being promoted across the United States further exaggerates the need for veterinarians. The commentary on the urban "rat problem" in a recent issue of *Time* magazine cited five major diseases of this rodent which are readily transmissible to man. Doctors of Veterinary Medicine have made significant discoveries pertaining to each of those five major diseases. Veterinarians are adaptable professionally and scientifically, and will serve well within the framework of the new "Community Health Concept."

Dr. W. T. S. Thorp, a member of the Advisory Council of the Bureau of Health Manpower, U.S. Department of Health, Education, and Welfare has predicted a shortage of 20,000 veterinarians by 1985. He declared that this is occurring at a time when modern medicine in all its categories, including veterinary medicine, requires a greater degree of competence and specialization than ever before.

THE NEED FOR FEDERAL SUPPORT OF VETERINARY MEDICAL EDUCATION

Citizens who are genuinely concerned with our nation's total health and welfare, recognizes an emerging national emergency created by the extreme shortage of veterinarians. The obvious answer is to expand the colleges of veterinary medicine in a manner which will enable them to accommodate the large numbers of young men and women who apply for admission. Facilities and operational support are not adequate even for the students currently enrolled in the veterinary medical colleges in this country.

At one of the oldest and well-established colleges of veterinary medicine, 50 per cent of the professional students and a large portion of the faculty are located in temporary space in the university's garage. That college is awaiting funds to become available for construction of teaching and research facilities. Equipment for instruction is either antiquated or so limited as to handicap the laboratory instruction in many schools. Their factulty and technical personnel are being lost to colleges of medicine, industry and government laboratories in the fierce competition for veterinary medical manpower.

Eighteen colleges in seventeen states carry the burden of supplying the nation's veterinarians. Each of these colleges is accredited by the Council on Education of the American Veterinary Medical Association, and their graduates are eligible to take state and national board examinations in veterinary medicine, dentistry and surgery; but the number of veterinarians graduated each year from all colleges totals only about 1,000.

Six to eight years of university education is required for the Doctor of Veterinary Medicine degree. The courses required are nearly identical to those required for the degree of Doctor of Medicine, except that all species of animals except man are considered.

After two to four years of pre-veterinary medical education in the university, students may apply for admission to the College of Veterinary Medicine where an additional four years of professional education is required before the degree of Doctor of Veterinary Medicine is awarded. During the past sixteen years at The Ohio State University, 66 to 75 percent of the well-qualified applicants for admission to the College of Veterinary Medicine could not be accepted because the college has inadequate facilities and faculty to accommodate more students. For the same reasons, during the past sixteen years, 89 per cent of the Doctors of Veterinary Medicine were refused admission to the Ph. D. programs in one of the departments.

The deficiencies in veterinary manpower are assuming alarming proportions. The number of professional students in the nation's colleges of veterinary medicine must be increased by two- to three-fold if a national emergency is to be avoided.

The following is a quotation from a report in the 1961 proceedings of the American Association of Land Grant Colleges and State Universities:

> The best estimates based on current needs indicate that the number of veterinarians in the country should be tripled by 1980. . . . in order to accomplish this . . . the capacity of all the present veterinary colleges must be doubled and at least five new veterinary colleges established immediately. In response to an overwhelming demand for graduates, most veterinary colleges are now developing means of accommodating more qualified applicants by increasing class size, or moving toward year-round teaching programs.

Estimates have also indicated that a 300 per cent increase in the number of veterinarians in the many specialties in veterinary medicine will be needed by 1975.

Achievement of minimal goals for increased enrollment in the Colleges of Veterinary Medicine and maintenance of the quality of professional education requires vastly increased financial support. Experience has clearly demonstrated that adequate funds for development and expansion are not and will not be provided by the states in which the nation's eighteen veterinary medical colleges are located. Since these colleges must educate veterinarians for the entire nation, federal support of their development and expansion is clearly justified. The efforts of veterinarians to maintain animal health and directly and indirectly to promote human health justify the contention that veterinary education is as deserving of federal support as any other health profession for which provisions have already been made in the Health Professions Educational Assistance Act. Insufficient funds have handicapped educators' attempts to adapt modern principles of education—such as classroom use of computers, closed circuit television, and autodidactic or autotutorial laboratories—to veterinary medical education.

Veterinary medical colleges have been unable to capitalize upon the well-established new educational techniques because they were denied the educational improvement grants provided to other health professional colleges under Public Law 90–290. Research on veterinary medical education and innovations in curriculum have been hampered by the lack of significant financial support. It is imperative that veterinary medical colleges be included in future legislation relating to the support of education in the health professions, including: educational improvement grants, construction of teaching and research facilities and institutional support for innovations in veterinary education and research and student loans and scholarship grants. The undeniable potential of the Veterinary medical component of the health professions can be reached through continued and expanding support by the U.S. Public Health Service.

STATEMENT OF DAVID E. DANIEL, DIRECTOR OF COLLEGE RELATIONS, LOUISBURG COLLEGE, LOUISBURG, N.C.

Mr. Chairman, it is with gratitude for the opportunity extended to me that I render a short written statement which directs attention to the outright and critical need for federal operational funding in nursing education. Particular reference to the associate degree nursing program will be made. The conclusion to be drawn is that H.R. 13096 or H.R. 15758 should carry provision for general operational funding for all programs which produce the registered nurse.

In my opening remarks I wish to quote from a recent publication entitled *Nursing in the South* by Hessel H. Flitter. Permission for use of this material before this committee has been granted by Dr. Winfred H. Godwin, Director of the Southern Regional Education Board, who with the financial help of the Kellogg Foundation, produced the publication.

"In 1957, the National League for Nursing recommended a conservative ratio of 300 nurses per 100,000 population. Six years later, taking the expansion of health facilities and programs and other factors into account, the Surgeon General's Consultant Group recommended a minimum goal of 375 nurses per 100,000 population by 1970. More recently, the Division of Nursing of the U.S. Public Health Service reassessed the situation and set a goal for 1975 of 450 RN's per 100,000 population." [1]

". . . registered nurses . . . are prepared for beginning practice through three types of progams: diploma programs administered and supported by hospitals, generally three years in length; associate degree programs administered by junior or community colleges or, less often, by senior colleges or universities, usually two years in length; and bachelor's degree programs administered by senior colleges or universities, four to five years in length.

"Each of these types of program must be approved by the state board of nursing in the state in order for graduates of these programs to be eligible to take the state licensing examination. Upon successful completion of this examination, the nurse is registered in that state and entitled to be called an 'RN.'" [2]

"A large amount of the nursing services obtained by citizens in the South is given by practical or vocational nurses. Practical nurses are qualified to give care to the sick in hospitals and nursing homes under the orders of a physician or the supervision of a registered nurse. Practical nurses generally receive their education in one-year programs administered by vocational and technical schools, hospitals, junior colleges, high schools, and independent agencies. Each program is approved by a state agency and only graduates of state-approved programs are eligible to take the state licensing examination. All 50 states have some provisions for licensing practical nurses, and 15 have legislation which requires licensure of all persons employed as practical nurses.

"Federal legislation which provided funds for educational programs, such as the Manpower Development and Training Act of 1962 and the Vocational Education Act of 1963, has influenced the rapid expansion of programs preparing practical nurses." [3]

"Of the three types of programs which prepare nurses for licensure as RN's—diploma programs constituted 80 percent of these programs in the nation and 77

---

[1] Hessel H. Flitter, *Nursing in the South* (Atlanta: Southern Regional Education Board, January, 1968), p. 1.
[2] *Ibid.*, pp. 7–8.
[3] *Ibid.*, pp.. 23–24.

percent in the South in 1960. By 1966, diploma programs had decreased to the point where they represented 65 percent of the programs in the nation and 58 percent of those in the South.

"Although the diploma programs are still the most numerous, the most rapid growth in recent years has been in the associate degree programs administered mainly by junior colleges. In 1960, associate degree programs represented six percent of the nursing programs in the South. By 1966, they represented 23 percent of the programs in the South and 32 percent of the 218 associate degree nursing programs in the nation." [4]

"In the period between 1960 and 1966, the South experienced an overall increase of 28 percent in admissions in the three types of programs that prepare nurses for licensure as RN's. When the admissions are examined for each type of program, wide variations can be seen. Bachelor's degree admissions increased by about 85 percent, associate degree admissions increased by 650 percent, and admissions to diploma programs decreased by more than nine percent." [5]

"In 1966, the South averaged a ratio of 198 nurses to 100,000 population. National goals for 1975 projected needs for 450 nurses per 100,000 population. At the present rate of production of nurses, and in the face of an expanding population, by 1975, the South's supply of nurses may drop to 185 per 100,000 population. For the region to reach a conservative goal of 300 nurses per 100,000 population would require that graduation from schools of nursing be increased by 1975 to nearly four times the number graduated in 1966." [6]

TRENDS IN NURSING EDUCATION

"There is a critical shortage of nurses throughout the nation today, but nowhere is the shortage more pronounced than in the South. Not only is the South's present need for more nurses at a critical stage, but the prospects for the future are even more alarming. Significant trends . . . indicate that the situation in the South will get worse in the years immediately ahead, unless a concentrated effort to increase the nurse supply is launched now." [7]

The development of the two-year associate degree nursing program is widespread across the nation. Over 225 college controlled programs leading to an associate degree in nursing education are in existence in the United States and its territories. Currently North Carolina has eight associate degree programs: six based in state-supported institutions; two based in Baptist junior colleges, at Boiling Springs (Gardner-Webb Junior College) in the West, and Murfreesboro (Chowan College) in the East. As two-year associate degree programs become the trunk line to the registered nurse labor supply, the baccalaureate four-year nursing degree is becoming the trunk line to the ever increasing complexity of Medical nursing supervision and administration. Baccalaureate programs now exist at nine colleges and universities in North Carolina, and are anticipated in at least two others. It is apparent that the patient-care nurse labor force will coninue to be in critically short supply with the expansion of the baccalaureate program. The baccalaureate graduate tends to serve increasingly in administration and supervision, while the associate graduate tends to provide basic patient care. Certainly we need both in North Carolina, and care must be taken to insure and maintain proper balance.

"In 1966, an average of 319 nurses were employed per 100,000 population in the states outside the South. In the South, only 198 nurses were employed per 100,000 population." [8]

Three-year diploma schools for nursing now number twenty-two in North Carolina. These programs are based in public and private hospitals. Many of these diploma schools are of excellent quality. However, authorities in the nursing field agree that operational costs are becoming increasingly prohibitive for many hospitals; that the hospitals face a disadvantage in that they cannot usually provide a college setting; that the search for and maintenance of a competent faculty is most burdensome. Further, these authorities agree that recruitment is becoming more difficult with each passing year, and more expensive. Therefore, while excellent diploma schools should be encouraged to persevere, and should receive federal operational funding as provided in H.R. 13096, many

[4] *Ibid.*, p. 25.
[5] *Ibid.*, p. 28.
[6] *Ibid.*, p. 44.
[7] *Ibid.*, p. 1.
[8] *Ibid.*, p. 1.

feel that the three-year diploma school is out of step in today's concept of nursing education.

In Hessel H. Flitter's study it was revealed that during the period October 1965, to October 1966, 1 diploma school was opened and 25 were closed in the United States. In the South, including 15 states, 1 diploma school was opened and 7 closed. During that same year in the United States, 44 associate degree programs opened and none closed. Of that number in the Southern region 17 opened and none closed.

Some hospital schools have been quick to get out of the business in order to affiliate with a nearby college. Cleveland Memorial Hospital in Shelby, North Carolina, is a good example. Its diploma school was costing approximately $90,000 per year. Now the Cleveland Memorial Hospital is supporting the associate degree program at Gardner-Webb Junior College in the sum of $20,000 per year. The hospital in Rutherfordton is supporting that program in a like amount; and, both institutions are serving as cooperating hospitals in the practical area of the Gardner-Webb curriculum. Since 1963 five hospital diploma schools have dissolved in North Carolina. All are now associated with educational institutions as cooperating hospitals to our associate or baccalaureate program.

In short, Louisburg College recognizes the critical need for additional nursing personnel in the north-central Piedmont of North Carolina. The institution also recognizes the national trend in nursing education to be the two-year associate degree program which is based at a junior college. We at Louisburg College are also aware that private junior colleges which have exised primarily to serve the liberal arts curriculum must become service oriented to a much greater extent.

The two-year program at a junior college meets the educational needs of students who wish to obtain their nursing education in a relatively short period of time in their own community and in a college setting where they can secure college-level general education and nursing education. Graduates of this type of progress are eligible to take the State Board Examination for Registration as a nurse.

Therefore, Louisburg College proposes the establishment of an associate degree nursing program to begin in the fall of 1969 with an approximate enrollment of from 30 to 40 students. It is estimated that $50,000 per year for the five years 1969–1974 will be needed for operational funding. Therefore, it is imperative that federal operational funding be provided, not only for hospital diploma schools, but also for the associate degree and baccalaureate programs in educational institutions.

STATEMENT OF KARL R. REINHARD, D.V.M., PH.D., DEAN, COLLEGE OF VETERINARY MEDICINE, OKLAHOMA STATE UNIVERSITY, STILLWATER, OKLAHOMA

Fundamentally, medical science and veterinary medical science are one. The differences between veterinary and human medicine result from the idiosyncrasies of species with regard to morphology, adaptive physiology, pathoecology and economic and sentimental values of the individual. Realistic appraisal leads to the conclusion that economic considerations account for the disparity between veterinary medical and human medical practice. This separation of the professions on the basis of species and economic considerations cannot logically be carried over into the sciences undergirding them, for advances in those sciences inevitably lead to progress in both professional fields. To cite a few instances, mechanical pinning of fractures was developed to a great extent in the treatment of traumatic injuries of dogs. The transmission of infectious disease by arthropods (Texas fever) was proved in the course of a veterinary disease investigation. Although variolization was the first procedure derived for immunization against viral disease, mass immunization against viral infections by parenteral administration of virus preparations was developed largely in veterinary medicine (hog cholera; canine distemper). The determination of the etiology of Dicoumeral (Sweet Clover) poisoning of cattle was an extremely significant veterinary discovery which yielded great benefits later in application of the chemical agent in the treatment of human cardiovascular disease. Conversely, many discoveries in human medicine have been applied profitably to the practice of veterinary medicine, notably in the treatment of degenerative and chronic diseases of household pets and other animals of sentimental or surpassing economic value. Most of the therapeutic compounds developed in recent years for human medicine have not only been tested in animal models, but have been used in veterinary medical practice to its betterment.

The value of veterinary medicine in the protection of health and productivity of farm animals has a direct bearing on the well being and excellent state of nutrition of the American people in assuring a large, economical supply of foods of animal origin. This fact, alone, is worth substantial federal support of veterinary education and research.

The presence of a veterinary profession—in these days of peril of war—affords a large reserve of auxiliary professional competence for medical and surgical treatment and care for the American public, should a national or local disaster occur. It is probably true that present federal plans for civil emergency do not include plans to utilize veterinary physicians and surgeons at their true potential. Present plans call for the use of veterinarians to inspect foods of animal origin and similar activities—which could be conducted just as well by trained technicians under emergency situations. However, whether or not present plans are adequate for full utilization, the veterinary profession could provide thousands of skilled surgeons and physicians who could be assimilated by the medical profession for emergency use in regional or national disaster.

Scientifically, the veterinary profession can be of inestimable value for the conduct of comparative medical research (interpreting the latter term in its broadest aspect). Wherever animals are involved in experimentation, comparative medical research is in progress. While it would be impossible—and unwarranted—to have every animal experiment under veterinary supervision, it is true that animal experimentation has suffered, in general, from the lack of application of good principles of animal medicine which are known to most veterinarians. Nevertheless, it is also true that, due in part to inadequacy of numbers of veterinarians available and in part to lack of sufficient specialized orientation, the veterinary profession is pressed to provide full service in this area and must strive to correct the deficiency as early as possible.

The veterinary profession, in the academic, governmental and industrial setting, has produced an immense amount of information of direct or corollary benefit and applicability to the advancement of human health. This applies not only to the solution of problems of diseases shared by man and animals, but also to discoveries of fundamental veterinary scientific value which bear directly on human medical issues.

Since the passing of the horse as the prinicpal means of local transport and, with it, the passing of proprietary veterinary colleges, individual states have borne almost all of the cost of education of the nation's veterinarians—private and federal contributions have been almost negligible until recent times. While state support has been the salvation of veterinary education for a generation or more, some of the difficulties in attainment of a full professional mission are also traceable to state interests. For the most part, veterinary colleges are on agricultural school campuses. While this helps to keep the profession well-oriented toward its large and serious agricultural responsibilities, it has also served to retard the development of small animal medicine and in fullfillment of many veterinary roles of importance to the nation. Furthemore, state funds are dedicated overwhelmingly to support of teaching programs. The small proportion of state funds devoted to veterinary research is often dedicated to issues of limited scientific significance or scope. Under present circumstances, it is extremely difficult for veterinary colleges to utilize funds for research facility construction because the necessary matching funds are not easily obtained from state and private sources.

The size of the professional limits the fulfillment of its traditional role as well as the extent of its participation in medical and public health services and research. Only eighteen schools are established and in operation. These are hardly sufficient to bring the practicing profession to a size commensurate with national needs. There are plans for moderate increase in class size and the establishment of two new schools—but these will not be adequate to bring the size of the profession in line with its role, both actual and potential. Furthermore, classes cannot be expanded nor schools established without first obtaining sufficient veterinary academic manpower. With quantity we also need quality—to expand student bodies without commensurate and preliminary expansion of academic staff can only lead to mediocrity of the finished product. The dilemmas of the veterinary profession are matters of vital national concern and worthy of congressional action.

Rightful concerns consist of the following:

1. Provision of adequate numbers of veterinarians, appropriately trained, for health practice, particularly in the area of animal-borne disease.

2. Provision of adequate numbers of veterinarians, appropriately trained, for fundamental and applied research in comparative aspects of medical and health sciences.

3. Provision of adequate numbers of veterinarians, appropriately trained, for research and practice in laboratory animal medicine.

4. Provision of special training for veterinarians to augment the medical manpower required for care in event of national or regional disasters.

5. Provisions of more and better-oriented veterinarians to meet the public demand for care of agricultural and pet animals through more efficient and innovative techniques of providing mass animal health care.

Note that the concern is not only for more veterinarians—but for veterinarians with advanced or specialized skills.

To meet these and corollary needs, I believe it is greatly in the public interest that the federal government should give strong support to:

1. The establishment of new veterinary schools, particularly in environments where they can develop fundamental medical science programs of great merit.

2. The establishment and further development of graduate level training in the basic veterinary medical sciences.

3. The support of veterinary professional studies and the support of veterinary graduate studies in health and medical sciences by increased loan and scholarship support.

4. The provision of teaching and research facilities in medical sciences, at veterinary colleges, with greatly decreased requirements for matching funds.

5. The development of centers of excellence in important, specialized areas of veterinary medical sciences in veterinary colleges which by virtue of staff development or location have developed unusual potentials.

6. The development of a program for integration of the veterinary medical profession into the emergency medical care activities of the nation in disaster situations.

7. A determined effort for greater incorporation of veterinarians and veterinary scientists in the service and research activities of the federal government wherever the professional talents or special proclivities of veterinarians can be utilized profitably.

STATEMENT OF CHRISTINE STEVENS, PRESIDENT, ANIMAL WELFARE INSTITUTE, NEW YORK

Specialization in the practice of medicine has obscured the fact that there is but one medicine, whether it be studied in man or in animals, as modern research is generally done, and whether it be practiced on man or on animals. Veterinary medicine obeys the same biological principles, is based on the same scientific studies and takes part in contributions to medicine as a whole. Because of the major role of animal experimentation in modern medicine the veterinarian's training is of the first importance in soundly based research.

To achieve the aims of H.R. 15757 colleges of veterinary medicine should be given assistance on the same basis as medical schools. To do otherwise would be to omit what is in many cases the most essential part of health research for the benefit of human beings, a knowledge of animal health and needs of the animals used in the laboratory.

Long needed improvements in care and housing of research animals are now being made in scientific institutions throughout the country in compliance with the Laboratory Animal Welfare Act, P.L. 89-544. One of its requirements, that animals receive "adequate veterinary care" means that the demand for men and women trained in veterinary medicine will continue to increase, to the benefit of research results and the animals used in obtaining them. Enforcement of this valuable statute is carried out by the humane veterinarians of the Animal Health Division, Agricultural Research Service, United States Department of Agriculture. The outstanding advances in animal welfare made since they have undertaken the inspection and licensing of animal dealers and the inspection and registration of research facilities is worthy of high praise. It is a tribute to veterinary medicine generally and the devotion and ability of these men in particular that so much should already have been accomplished in a field where stultifying and unproductive controversy had reigned for years till practical scientific and humane principles were put into effect in implementing the new law.

For the continued enforcement of the Laboratory Animal Welfare Act, P.L. 89–544, for the continued enforcement of the other important programs of U.S.D.A.'s Animal Health Division in disease eradication or control, protecting, the health of livestock on which we depend for food and other necessary products, well trained veterinarians are absolutely essential. The nation's veterinary schools need and deserve the support which would be provided if they are included in the provisions of the Section on Institutional Grants of H.R. 15757.

We pride ourselves as a nation on our humane attitudes. We pride ourselves on development of preventives and cures of disease and injury. For the continuing development and the support of these ideals and goals, good men trained in the veterinary medical discipline must graduate in increasing numbers from the eighteen colleges which give the D.V.M. degree.

On behalf of the Animal Welfare Institute I respectfully urge the distinguished members of this committee to amend H.R. 15757 to include veterinary colleges before recommending its passage by the full House of Representatives.

STATEMENT OF FRED C. DAVISON, PRESIDENT, UNIVERSITY OF GEORGIA

The Role of Veterinary Education in Agriculture is of traditional and obvious importance because of the necessity of controlling and eliminating diseases of animals producing food for man. However, an increasing and even greater role for veterinary education is training new graduates to function as an indepedent group of scientists with a vital and legitimate role in biomedical research and public health programs. The research contribution of veterinary scientists to basic health sciences by use of experimental animals is of tremendous benefit in solving problems afflicting and affecting the health of man. The study of comparative medicine by veterinary biomedical scientists has provided many solutions to disease problems in man. All indications point to the increased use of experimental animals for research to solve problems of aging, cancer, heart disease and other fatal diseases that shorten or debilitate the life of man.

In addition to vastly increased activties of veterinanrians in biomedical research the recent passage of regulations for meat and poultry inspection to protect the consumer requires an increase in the number of veterinarians.

The increased human need for animal protein food stuff in the world also calls for more veterinarians to control animal diseases. The World Food and Agricultural Organization estimates that a 50 percent reduction of losses from animal diseases in the developing countries is a realistic goal and that it would result in a 25 percent increase in animal protein production. This reduction in animal losses would result principally from an increased supply of veterinarians educated to conduct biomedical investigations to control diseases causing deaths in animals and likewise in man when transmissible.

Approximately one-half of the veterinarians in the USA are engaged in practice. The majority of the others are engaged in teaching and research or in supporting positions such as laboratory animal medicine. The present occupations of veterinarians in the USA are as follows: 7 percent in large animal practice, 19 percent in small animal practice, and 31 percent in mixed practice for a total of 57 percent of the veterinarians in the USA who are conducting practice. The remaining 43 percent are engaged in teaching, research, consumer regulatory work for the government, industry and in specialities such as laboratory animal medicine. The latter category is a prominent example of a new activity for which insufficient veterinarians have been educated. The demand for veterinarians with special qualifications in laboratory animal medicine to support programs in biomedical research has appeared suddenly and is unfulfilled. A recent survey by the National Academy of Science identified about 2000 biomedical research laboratories in the USA, which housed experimental animals and needed the services of a veterinarian. At present only 106 veterinarians hold board certification from the American College of Laboratory Animal Medicine.

The entire output of veterinarians graduated from all the schools in the US this year would not meet the existing need for veterinarians in laboratory animal medicine, which is only one of the many specialties in biomedical research for which veterinarians are in great demand.

The need for veterinarians considerably exceeds the productive capacity of the present educational system. A long range forecast indicates that 40,000 veterinarians will be needed by 1980. This figure is 12,000 in access of what our present veterinary colleges can provide during that period of time. Obviously the addi-

tional 12,000 veterinarians can be educated only by enlarging existing schools and building new schools.

There are 18 schools of veterinary medicine for the 50 states in the USA and each serves more than the state in which it is located. The School of Veterinary Medicine, University of Georgia serves a total of five states: Georgia, South Carolina, North Carolina, Virginia and Maryland. Veterinary schools should be viewed as a national resource instead of a state resource and therefore partly supported by federal dollars in supplement to the appropriation from the state in which the school is located.

The demand for entrance into the professional program of the veterinary schools far exceeds the capacity of the existing schools. For example, the following numbers of *eligible* preveterinary candidates were interviewed for entry into the School of Veterinary Medicine at the University of Georgia:

	1967	1968
Georgia	49	53
South Carolina	10	14
North Carolina	10	13
Virginia	24	30
Maryland	28	46
Total	121	156

All of the above candidates have exceeded the average college student grade point and have survived elimination on personal interview examinations conducted within each state. From this total the University of Georgia accepted 64 students for the entering class of 1967; not all of these will be graduated because of the normal attrition-rate.

If federal assistance in the form of an institutional grant were available for improving our present educational plant, and if a construction grant were available for building an addition to the present School of Veterinary Medicine, we would have matching state funds to increase the size of our entering class to a minimum of 85 students for an increase of 33 percent.

From the above discussion the critical importance of H.R. 15757 (Health Manpower Act of 1968) in support of veterinary education is obvious for the Southeastern states. This bill would provide vital support for construction grants, student loans, and scholarship grants in the 18 schools of veterinary medicine in these 50 states.

It is unfortunate that veterinary schools have not been declared eligible to receive institutional grants under H.R. 15757 in view of the direct contribution of veterinarians to biomedical research, public health and consumer protection. The importance of educating veterinarians to protect the health of man is incontrovertible. We cannot emphasize too strongly the importance of making schools of veterinary medicine eligible for institutional grants under this bill.

AMERICAN MEDICAL ASSOCIATION,
Chicago, Ill., July, 9, 1968.

Hon. JOHN JARMAN,
Chairman, Subcommittee on Public Health and Welfare, Committee on Interstate and Foreign Commerce, U.S. House of Representatives, Washington, D.C.

DEAR CONGRESSMAN JARMAN: On June 12, Dr. William A. Sodeman appeared before the Subcommittee on Public Health and Welfare of the House Committee on Interstate and Foreign Commerce to present testimony on behalf of the American Medical Association regarding H.R. 15757, the Health Manpower Act of 1968. During the discussion which followed it was agreed that certain supplementary information would be forwarded at a later date. That information follows:

At one point Mr. Rogers asked for estimates of what the shortage of physicians would be in five years. We do not have such an estimate, nor is there agreement as to the extent of the present shortage. It should be realized that in recent years the number of physicians has been increasing faster than has the population and that the shortage is due to an increase in demands and not due to a decrease in the ratio of physicians to population. From 1955 to 1965 the population of this

country increased 17% and the number of active physicians increased 22%. The recent report of the National Advisory Commission on Health Manpower predicted that for the decade ending in 1975 our population is expected to increase by 13% and the supply of physicians by 17% or 18%.

It is calculated that in 1960 there were 149 physicians per 100,000 people in this country. In 1965 the figure had increased to 153 per 100,000 people and it is expected that in 1975 it will be 160.

Nevertheless, changes in the way physicians are being used and increasing demands for their services lead us to predict that in the coming decade the physician shortage will grow. The average physician, for example, is spending a much greater proportion of his time in administrative duties and there is a growing need for physicians in full-time administrative positions occasioned by recently enacted Federal programs.

Mr. Rogers called attention to relatively large increases in total budgets and numbers of full-time faculty and much smaller increases in numbers of graduates. Dr. Sodeman pointed out that the figures do not tell the whole story and agreed to provide further explanation. As Dr. Sodeman pointed out, the figures presented made no reference to the role of parttime faculties in medical schools. Advances in medical science, the growing importance of research, and other factors have compelled the medical schools to depend to a greater extent upon full-time, salaried faculty. While the number of part-time faculty also has increased, the relative role of the full-time compared with the part-time faculty has increased substantially in recent years.

Of greater importance is the increased responsibility of the medical schools for research. Between 1958–1959 and 1965–1966 the total expenditures of the Nation's medical schools increased by $563,155,511 as the Fact Sheet indicates. However, $369,968,598 or 65% of this increase is accounted for by funds available for support of sponsored programs, mostly research and research training. While the increased research activity of the medical schools undoubtedly improved the quality of the educational programs of the medical schools, it would not be expected to increase appreciably the number of medical students the schools were capable of educating.

It should be remembered also that medical school faculties carry a large share of the responsibility for the education of students other than medical students. In recent years there has been a marked increase in the number of such students. It was found, for example, that in 1960–1961 medical school faculties were responsible for 33,364 students other than undergraduate medical students, calculated in terms of full-time equivalents. This is more than the number of undergraduate medical students at that time, 30,093. In 1965–1966 this number had increased to 43,335, an increase of about 30%.

Finally, there was a rather substantial inflation from 1958 to 1966.

Mr. Rogers pointed out that the bill's requirement of an increase of 2½% or five students was an insignificant requirement and asked for our recommendation as to a more substantial one. The bill also provides that, in the case of the institutional grants, a large part is distributed in such a way that a school receives twice as much per additional student as for one previously enrolled. We believe that, if the appropriation under this bill is sufficiently great, this provision provides enough incentive for the schools to increase their enrollments. If the appropriation is very small, it would not be effective regardless of the requirement. We doubt that it would be wise to require every school to increase its enrollment. Some already are in a very critical financial situation and the enrollment could not be increased without serious risk of lowering the quality of their educational programs disastrously.

Mr. Rogers asked Dr. Sodeman to "let us know what you think would be a realistic ceiling on project grants." It is now $400,000. Mr. Rogers indicated that he would agree to raising the limit but not removing it. To a greater or lesser extent a limit ties the hands of the people administering the Act. The size of the appropriation pretty well limits the amount that can be granted to a given school. According to our information some schools are incurring annual deficits in excess of $1,000,000, a situation that cannot continue. If the limit in the bill were raised from $400,000 to perhaps $1,000,000, it might be possible to rescue such a school from its critical situation.

The amount, if at all, that a given school can or should expand must be determined by the local situation. This involves such matters as the state of the buildings, available space for expansion, architectural considerations, the availability of local funds for matching purposes for construction, the availability of

local operating funds, and so on. The establishment of new schools depends upon the number of universities in the country in a position to establish medical schools and our success in persuading them to do so. There is no present possibility of too many medical schools being established. If many additional universities are persuaded to establish medical schools, it will be because the Congress has made it economically possible for them to do so by providing both construction funds and operating funds under attractive conditions.

Mr. Skubitz asked if we would provide information as to what proportions of one graduating class is going into practice, into research, into teaching or industry. It should be realized that a number of years elapse after a class graduates before the ultimate destination of its various numbers is known for somewhere between two and six years of graduate training and two years in the armed service follow graduation. Mr. Cahill's questionnaire circulated to the deans showed the present intention of two recent graduating classes as these were known to the deans answering the questionnaire. It was reported to Mr. Cahill by the deans who replied to the questionnaire that of the students graduating in 1957 and 1958, 69.5% expected to specialize, 15% expected to go into general practice, 11% into research or academically oriented careers, and 4.5% into military service or administrative medicine. The latest study showing what students graduating in a given class year actually do a number of years later is one conducted in 1965 and 1966 of the physicians who had graduated in 1955, ten years earlier. It was found that in the class of 1955, 69.9% were in private practice, compared with 77.6% of the class of 1950. 9.5% were in teaching or research compared with 6.3% of the class of 1950. 76.8% of the class of 1955 limited their practice to a specialty and 17.7% were in general practice, compared to 68.1% and 24.6% respectively for the class of 1950. The relevance of these figures to the behavior of the class of 1968 is uncertain.

I hope that the information provided above clarifies and amplifies adequately that presented in our testimony before the Committee.

Let me express on behalf of the American Medical Association appreciation for the opportunity provided our witness to appear before the Subcommittee and present our views on the subject of health manpower.

Sincerely,

F. J. L. BLASINGAME, M.D.

STATEMENT OF HENRY B. PETERS, O.D., ON BEHALF OF THE ASSOCIATION OF SCHOOLS AND COLLEGES OF OPTOMETRY AND THE AMERICAN OPTOMETRIC ASSOCIATION

Mr. Chairman and Members of the Committee, I am Henry B. Peters, O. D., Assistant Dean, School of Optometry, University of California at Berkeley. This month, I am completing a one-year term as President of the Association of Schools and Colleges of Optometry whose members are the nation's ten optometric teaching facilities. I also serve as a member of the American Optometric Association's Committee on Public Health and Optometric Care.

The Association of Schools and Colleges of Optometry and the American Optometric Association appreciate this opportunity to express support of H.R. 15757, the Health Manpower Act of 1968. While there are a few points we feel may warrant further consideration before passage, there is no question about the need for continuing the programs with which the bill deals.

Optometric educational institutions have witnessed firsthand some of the results of the Health Professions Educational Assistance Act and subsequent amendments. One of the most recent events pointing up the benefits of the Act was the dedication of a new optometry building at Indiana University in April. The building houses the Division of Optometry and provides additional facilities for graduate school programs in Physiological Optics.

In June last year, the College of Optometry at Pacific University, Forest Grove, Oregon, dedicated its expanded facilities made possible in part by a $300,000 grant under P. L. 88–129. There are other projects in progress, including facilities at Illinois College of Optometry in Chicago and Southern College of Optometry in Memphis, Tennessee.

The remaining six colleges of optometry have also taken steps to improve or expand their facilities or teaching programs.

Continuing Federal support is essential to assure the availability of optometry school graduates to provide vision care services to our 200-million citizens. Grants and loans authorized by existing legislation have played a major role in further

upgrading the quality of optometric teaching facilities and increasing the number of students the schools are able to train.

We do have some reservations about the new formula requiring a 2½% or five-student increase of first year students as the basis for qualifying for a grant. It is conceivable this requirement for expanded enrollment could lead to even more serious difficulties for optometric teaching institutions already hard-pressed financially. One of our schools, the University of Houston College of Optometry, provides a good example of how this may work. In a letter to the AOA commenting on this legislation, the Dean of the school states: "* * * we are caught between needing to build for programs which we do not have or delaying building until we have developed the programs for which we do not have space." This is a fairly typical situation among most of our schools and colleges. They cannot qualify for federal assistance until they have the additional enrollment, but they cannot physically accommodate the additional enrollment until they have federal financial assistance to provide more space.

It is our thought the required increase of optometric manpower might be achieved more efficiently and economically by new or additional schools rather than by arbitrary expansion of our present ten schools.

The pending proposal will also expand the scope of existing laws to include other disciplines important to the general health of the public; this is commendable. We would urge that any funding formula contained in this bill be carefully reviewed to assure that programs initiated under existing law in no way be curtailed.

We hope Congress in its wisdom will move promptly to provide funds sufficient to accelerate the health care training programs and to assure the necessary increases in funds required to administer such programs.

The amendment to Section 723 of the Public Health Act is an important one, as it extends the use of facilities to research, medical or health library purposes, in addition to teaching. Research constitutes an essential adjunct to training of health care practitioners. Adequate library facilities provide reference data to support research activities. Since this portion of the Act applies to professions other than medicine, however, we feel it would be appropriate to amend the language on page 4, line 19, it read "health professions library" rather than "medical library."

Deans of the various optometry schools were solicited for comments on this legislation when it was first introduced as S. 3095 in the Senate, a bill identical to H.R. 15757. Responses from some of the schools are attached to this statement for your information. Statements from other optometry schools may be submitted separately.

The Association of Schools and Colleges of Optometry and the American Optometric Association are pleased to have had an opportunity to support this legislation, which will assure that health care professions will be able to further extend the record of achievements made possible by the original legislation being improved upon by H.R. 15757.

HENRY B. PETERS, M.A., O.D., F.A.A.O.

Title: Associate Professor of Optometry, Assistant Dean and Director of Clinics, School of Optometry, University of California.

Place and Date of Birth: Oakland, California, 1916.

Education: A.B., University of California, 1938, Optometry M.A., University of Nebraska, 1939, Educational-Psychology.

Professional and/or Business Experience:

President, Association of Schools and Colleges of Optometry, 1967–68.
Vision Consultant, Contra Costa County, California, School Dept.
Vision Consultant, Lawrence Radiation Laboratory (AEC), Livermore.
Vision Consultant, Kaiser Aluminum and Chemical Company.
Research Fellow, American Research Council of Optometry, 1938–39.
Lecturer, Los Angeles College of Optometry, 1939–40.
Lecturer, Claremont College, Claremont Reading Conference, 1940.
Fellow, American Academy of Optometry, and former Chairman of Section on Public Health and Occupational Optometry.
Fellow, Distinguished Service Foundation of Optometry.
Fellow, American Association for the Advancement of Science.
Member of the Faculty, University of California, School of Optometry, since 1946.

Vice-President, Children's Vision Center of East Bay.

Member, Committee on Public Health and Optometric Care, American Optometric Association, 1963–64, 1967–68.

Educational Director, PHS–AOA Training Seminar on Optometry in Public Health, February 1967.

Special field of interest is vision screening and its application in schools and industry.

Author and co-author of many articles on optical problems and vision, vision screening in schools, industry, and transportation.

Member, Ad Hoc Program and Review Council, California Medical Assistance Program.

Activities: Member, Sigma Xi and Phi Beta Kappa; "Optometrist of the Year," California, 1959.

Personal History: Lt., U.S. Naval Reserve, 1942–46.

COMMENTS BY OFFICIALS OF SCHOOLS AND COLLEGES OF OPTOMETRY REGARDING S. 3095

Illinois College of Optometry (Private), Chicago, Illinois:

"Would like to go on record in support of this bill". (Dr. Alfred A. Rosenbloom, Dean).

Indiana University, Division of Optometry (State), Bloomington, Indiana:

"While there is built into the bill some provisions to increase enrollments over the present figures, the legislators should consider the possibility of providing for an increase in the number of colleges of optometry rather than merely expanding present facilities." (Dr. Henry W. Hofstetter, Director).

Ohio State University, School of Optometry (State), Columbus, Ohio:

"We are in favor of the legislation, but do not favor the bonus or double payment for schools which increase their enrollment levels above those of prior years." (Dr. Fred W. Hebbard, Director).

LOS ANGELES COLLEGE OF OPTOMETRY,
Los Angeles, Calif., March 21, 1968.

DR. W. JUDD CHAPMAN,
Chairman, Committee on Legislation AOA,
Tallahassee, Fla.

DEAR DR. CHAPMAN: Thank you for supplying the comments and copy of S. 3095 to this college and our opportunity to comment is appreciated.

In reply to your telegram of March 20th, I have wired the Washington Office a summary of our attitude about this proposed legislation as follows: "Opinion of this college S. 3095 represents great improvement over previous requirements of Public Health Service Act, particularly in provisions for Library and Research facilities and method of payment of Institutional improvement grants. Favorable action recommended. Letter follows."

As all of you must be aware, the availability of Federal Grants for construction, basic and special improvement grants, scholarships to students, loan funds, and the like have represented major improvements to all schools of optometry. The American Optometric Association and its hard-working committees and staff are to be complimented on the work they have done to make all of this possible.

In our opinion the new proposed legislation as is outlined in S. 3095, represents another major improvement in the wording of the Public Service Act. As previously stated in our telegram we are particularly pleased with the attempt to include research and library facilities in the provisions of the act. For most colleges of optometry this can be a very welcome and convenient change for by the very nature of their specialization optometry schools require the immediate availability of these facilities within their buildings.

Additionally, we are in favor of the proposed change in the method of distribution of funds to the various professions. We believe it is as important to consider the number of graduates as it is to consider the entering class. To the suspicious mind this might appear as an incentive to graduate students who are not as fully qualified as they might be but I believe that era in this profes-

sion, as in the others, has long since passed and each school is concerned with graduating a candidate for the profession with the highest qualifications that it is possible to give him. As is the intent of the bill, this consideration for the number of graduates may very well be the incentive to improve the counselling and exercise the concern that some young men seem to require.

We do have some concern about the requirements for eligibility as it will require a slight increase in enrollment for the entering class at this college. This is a problem which must be resolved between the Council on Education which establishes the ceilings and the individual colleges or the Association of Schools and Colleges collectively. For most schools this problem will be resolved when new construction has taken place and expanded facilities are available.

In general we believe the proposed changes for the Public Health Service Act are to the advantage of education in the Health Professions and we strongly recommend the hearing committee act favorably towards its passage.

Sincerely,

CHARLES A. ABEL, O.D., *Dean.*

PENNSYLVANIA COLLEGE OF OPTOMETRY,
Philadelphia, Pa., March 21, 1968.

Dr. W. JUDD CHAPMAN,
American Optometric Association,
Washington, D.C.

DEAR MR. CHAPMAN: S. 3095 is an important bill, but the most important area is the pool of funds relative to Basic Improvement and Special Projects Grants (pages 6 and 7).

Should this area be so funded that there would be less than $1,500 per student, the bill will be not worthy of its function.

This year's operating budget here at P.C.O. breaks down to a cost of $2,735 per student. Our projections indicate a direct teaching cost of $3,375 within two years. If one realizes that our tuition is $1,200 per annum, you will be painfully aware that a vast chasm exists between cost of education and school income.

Tuition has risen to its maximum here in Pennsylvania. Competitive health care professions teaching institutions charge from $400 to $1,200 per annum as tuition. It should, therefore, be obvious that tuition is not the answer to the need for additional funds.

We in optometry have not as yet developed our capability for private fund raising. This is true of most of the health care professions teaching institutions. This facet of fund accumulation is too far in the future for effective use.

State assistance is still in its early stages. Here in Pennsylvania, it amounts to approximately 8% of our operating budget.

It is, therefore, imperative that the Federal Government become more involved in the funding of all of the health professions teaching institutions.

As the professions become more affluent, it becomes more difficult to recruit new teaching personnel and retain old personnel. The *rewards of private practice* must be *matched by the schools* if *competent faculty* are to be used in teaching. The schools cannot do so without *massive new funding.*

There *must* be a "crash" program for the training of new teachers. A ten-year program is a must. Graduate optometrists must be enticed into post-graduate studies to prepare themselves for teaching. This will take fellowships of approximately $7,500–$10,000 per annum each for four-year periods. This to the end of new M.A.'s and Ph.D.'s beyond the O.D. degree.

Senate Bill S. 3095 is a most commendable piece of legislation. The keys to its efficacy will be the amount of funding and the complexity of the regulations set forth by H.E.W.

No institution in the health care field can afford the personnel to spend full time preparing proposals to H.E.W. The work is overwhelming and if this is required, it will subvert the philosophy of the Congress. Simple regulations and reporting procedures are the concomitant of a successful program.

Thank you for the opportunity of getting this off my chest. If I may be of further assistance, please feel free to avail yourself of my time.

Cordially,

STANLEY S. WILLING, Ed. D., *Dean.*

THE MASSACHUSETTS COLLEGE OF OPTOMETRY,
Boston, Mass., March 21, 1968.

Mr. RICHARD W. AVERILL,
Director, American Optometric Association,
Washington, D.C.

DEAR MR. AVERILL: I would like to say that as Dean of The Massachusetts College of Optometry, I am heartily in favor of supporting the following legislation:
Bill No. S3095—"Health Manpower Act of 1968."
Please have this endorsement included in the Appendix.
Sincerely,

HYMAN R. KAMENS, O.D., *Dean.*

UNIVERSITY OF HOUSTON,
COLLEGE OF OPTOMETRY,
Houston, Tex., March 26, 1968.

Mr. H. E. MAHLMAN,
American Optometric Association,
Washington Office, Washington, D.C.

DEAR MR. MAHLMAN: This is in answer to the telegram by Dr. Chapman concerning S. 3095. All in all, these appear to be worthwhile amendments to the Public Health Service Act.

The section under "Grants for Multipurpose Facilities" page 4, line 13–23, appears to be of great import to us. We have been working for a graduate program for many years. Our inability to start the program has been due to lack of faculty with the Ph.D. degree. We would also like to institute optometric technology and internship programs as well as a cooperative, optometric technician program. We are somewhat hampered in starting these programs by the limitations of our present physical facilities. Consequently, we are caught between needing to build for programs which we do not have or delaying building until we have developed the programs for which we do not have space. This section seems to hold great value in terms of building facilities for a graduate program to produce instructors and researchers in an area where there is now a great need for manpower. In addition, this section includes library facilities which are most important to us. I am somewhat concerned, however, by the term "medical library" in line 19. It would be far better, from our point of view, if the term "medical" were changed to "health professions."

If lines 9–12 on page 5 mean that the act is encouraging Continuing Education, this would also facilitate our providing updated material for the practitioner. We have had competition this year between our Continuing Education Program and our regular program for classroom, laboratory, and clinical facilities.

I find the change in title to "National Advisory Council on Health Professions Education Assistance" pleasing.

All in all, the amendments appear to improve the Public Health Service Act and should be supported.

Sincerely,

CHESTER H. PHEIFFER, *Dean.*

(Whereupon, at 3:50 p.m., the hearing was concluded.)

○