LETTER TO THE EDITOR

The Changing Nature of Biophysical Science

Dear Sir:

Biophysics is a young discipline which, in this country, has been primarily represented by one organization. This offers the unique possibility of observing not only the original nature of the science, but also the changes occurring in its early development. The Biophysical Society has held twenty consecutive annual meetings. It is appropriate to consider what research interests the members have and if there have been significant and measurable shifts.

The research reports given at the annual meetings were used to draw a profile of the activities of the members. All contributed papers from every meeting since 1957 (except those of the joint 1974 meeting which could not be separated) were categorized into 16 research areas. Most of the categories were those already devised by the various program chairpersons. Some were composed of tenuously connected subjects (viz. Cell Biology, Cryobiology and Environment; Axons, Neurobiology, Electrophysiology and Electrocardiography). Furthermore, the assignment of a particular report to a specific category was often somewhat arbitrary: papers concerned with repair of ultraviolet-damaged DNA were listed under "Photobiology"; muscle protein studies were placed in the "Muscle" classification.

It should also be noted that the profile derived from this analysis is based on a dynamic organization (we hope in both senses of the word). The individual members change, their research interests change and the choice of meeting at which to present the papers also changes. Therefore the image of "Biophysical Science" obtained from these data is a reflection of who the members are and what they do at any given moment.

The table lists the various research areas. In addition, the Society membership (kindly supplied by the Secretary) and the total number of contributed papers are given. Initially there was a seven-year period with 195 ± 16 (SD) contributed papers per meeting. Subsequently there has been a linear increase of 34 papers per year with a proportionate increase in membership. The first four categories (A-D) include viruses, macromolecules and radiation, roughly the molecular biology-oriented research, while the next six (E-J) include nerve, muscle and membrane, or the more physiological group. Until 1969, the molecular biologists presented almost half the research papers, while the physiologists gave fewer than one-third. Since that time the absolute number of molecular biology reports has reached a plateau of $\sim$ 190. However, there has been a dramatic shift in proportion in recent years from 27% to now over 60%, augmented especially by the interest in lipid bilayers and bioenergetics.

Two broad categories have remained relatively constant. The "Theory and Models" group has been maintained at about 23 papers per year, while the "Instrumentation and Techniques" category hovers around 15 papers annually.

Year	Membership	Total papers	Molecular Biology				Physiology											
			A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
1957		207	20	27	23	10	10	17	7	9	1	—	20	9	2	21	25	6
1958		195	17	52	10	12	—	22	21	11	—	—	24	9	—	9	7	1
1959	768*	180	16	52	5	12	12	11	12	12	1	—	12	13	2	11	9	—
1960		179	16	41	11	11	14	16	14	14	—	—	9	3	—	12	10	8
1961	760*	181	6	51	10	13	6	15	12	13	—	—	16	8	3	21	6	1
1962	1,056*	205	15	55	9	25	12	12	10	14	—	—	16	7	2	11	17	—
1963		218	15	63	10	18	5	9	15	31	—	2	17	1	2	16	14	—
1964	1,040*	247	12	58	14	26	12	19	13	29	3	2	18	2	1	25	11	2
1965		329	20	88	17	44	12	13	17	44	2	1	15	9	8	29	5	5
1966	1,152*	304	27	70	15	31	11	9	17	58	1	3	1	6	6	33	16	—
1967	1,425	262	16	72	8	26	22	12	14	39	9	1	13	—	—	16	14	—
1968	1,456*	360	17	96	15	36	14	14	30	45	14	—	6	1	5	33	14	1
1969	1,651	377	12	112	20	33	23	12	20	93	—	—	16	3	—	11	22	—
1970	1,839	448	20	132	35	41	10	17	25	87	17	—	11	2	3	33	14	1
1971		479	21	108	29	39	21	57	39	92	1	1	10	1	7	25	24	4
1972	2,211	512	33	90	57	20	30	16	35	69	37	16	28	10	20	34	17	—
1973	2,356	602	1	124	41	33	18	46	62	94	31	16	27	—	26	54	29	—
1975	2,506	594	—	105	53	14	25	73	68	119	25	49	30	—	13	18	—	2
1976	2,720	642	12	124	21	37	30	70	92	121	33	55	2	—	1	19	24	1

*Estimated.

A, Viruses, bacteria, PPLO, and genetics.

B, Macromolecules, nucleic acids, proteins, enzymes, hemoglobin, ribosomes, and chromosomes.

C, Radiation.

D, Photobiology, photochemistry, photosynthesis, and ultraviolet light.

E, Vision and sensory receptors.

F, Axons, neurobiology, electrophysiology, and electrocardiography.

G, Muscles and contractility.

H, Membranes, transport, and red blood cells.

I, Lipids and bilayers.

J, Bioenergetics and mitochondria.

K, Cell biology, cryobiology, and environment.

L, Respiration and blood flow.

M, Bone and structure of small molecules and organelles.

N, Theory and models.

O, Instrumentation and techniques.

P, Other.

The changing nature of the science can also be seen in the pattern of the symposia held each year as well as in the nature of the subgroups. The contributed papers, however, allow a more detailed analysis of the active research of the members.

Received for publication 17 June 1976.

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