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Introductory remarks

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Penicillin – what names, accomplishments and benefits that word evokes. A combination of medicinal products that has wrought countless miracles, an area where superlatives almost become understatements.

It is remarkable that research in the penicillin area has continued for 50 years and has produced such spectacular benefits to mankind. In addition, the penicillin molecule has proved to be an extraordinary stimulus for scientific research in a wide variety of disciplines. Listed alphabetically, Abraham, Bachmann, Barton, Bose, Chain, Clark, Coghill, Fleming, Florey, Folkers, Foster, Heilbron, Hodgkin, Keefer, Morin, Robinson, Tishler, Du Vigneaud, Wintersteiner, Woodward – a partial litany of names, each of whom has brought a stone to the magnificent edifice that we call the penicillin story.

Unfortunately, some are no longer with us: some departed prematurely at the height of their powers and some have succumbed to the inexorable ravages of time. Some of them, happily, are with us today for this auspicious occasion. It has been my good fortune to have met them all. It is convenient to divide the penicillin saga into three periods. The first started with Fleming's observation in 1929 and continued sporadically through the extensive and intensive World War II research. From the late 1940s until 1959 the only published research on the synthetic chemistry of penicillin was carried out at M.I.T. under my direction. Foolishly, or perhaps not so foolishly, our laboratory was engaged in this lonely but eventually rewarding research effort which culminated in the total synthesis of penicillin V and of 6-aminopenicillanic acid (6APA), the penicillin nucleus, in 1956 and 1957 and the acylation of this same compound to form a variety of new penicillins. The field received a great impetus by the development in the Beecham Laboratories of commercially attractive microbiological methods of producing 6APA. The acylation of 6APA has led to the explosive development of the semi-synthetic penicillins, a development which continues to the present day.

The penicillanic acid and penam naming system were first proposed in 1953 in a publication in *J. Am. chem. Soc.* by Sheehan and coworkers. The parallel naming convention of cephalosporanic acid and cepham followed the brilliant discovery of the cephalosporins by Professor Abraham and coworkers.

At this meeting, recent developments will be reported and the background examined briefly. The penicillin molecule remains unique in intensity of research lavished upon it and in the substantial claim that the penicillins are indeed the queen of the antibiotics and continue after 50 years to occupy a pre-eminent position in medicine.

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