Any definitions exist for the term “drug.” For the purposes of this paper, a drug is defined as “an article intended for use in the diagnosis, cure, mitigation, treatment, or prevention of disease in humans or animals.”

Drugs affect biologic systems in both positive and negative ways. Humans have been gaining knowledge of the effects of drugs for thousands of years. The first drugs were likely discovered through accident and observation. As early humans tried different plant, animal, and mineral substances, they realized that some substances produced specific effects. They were then able to use the substances that had beneficial effects to achieve desired results, and they passed their knowledge of these “drugs” from generation to generation.

Early veterinary pharmacology was closely tied to early human pharmacology, to the point where the same drugs may have been tried for human and animal illnesses. Certainly, the practices of human and animal medicine share common beginnings.

**EARLY WRITTEN RECORDS OF NATURAL DRUGS**

With the development of writing and the ability to record knowledge, the information passed from generation to generation expanded to include organized knowledge about drug substances. The earliest written documents indicate that the use of drugs such as herbs, powders, and poultices had a place in religion and mysticism as well as medicine.

Around 3000 to 4000 BC, the Chinese documented the use of herbal medicine to cure illness in humans and valuable animals. According to legend, Chinese emperor Shen Nung made early discoveries about the medicinal values of herbs. Many of these discoveries are still recognized in modern pharmacy.

Asian, Ancient Egyptian, Sumerian, and Greek civilizations continued to contribute to medicinal developments throughout
The history of drugs goes back thousands of years, but many of the specific drugs used today are relatively recent.

1817 Article about morphine and its effects published

1915 First aspirin tablets made

1928 Penicillin discovered

1940 Pantothenic acid (vitamin B₃) synthesized

1946 Penicillin produced synthetically

1950s Anthelmintic properties of piperazine identified

1955 First polio vaccine licensed

1966 Pyrantel introduced

1994 First monthly systemic flea treatment

1996 First monthly spot-on flea treatment

1997 First veterinary NSAID

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drugs and spices — some of which were also thought to have medicinal properties — continued throughout the Middle Ages.4,5

PHARMACY IN EARLY MODERN TIMES

In 1498, the first official pharmacopeia was published in Florence, Italy. The goal was to provide a source for uniform pharmaceutical standards. In 1606, the Society of Apothecaries of London was formed. At that time, an apothecary was similar to a modern pharmacist, preparing and selling medicinal substances. When King James I granted a charter to the society in 1617, he created the first official organization of pharmacists in the Anglo-Saxon world.5

MODERN AGE DRUG DISCOVERIES

During the Colonial years in America, pharmaceutical and medical services were provided by governors, religious leaders, and educators. These men used imported drugs as well as drugs derived from local plants. In 1821, the Philadelphia College of Pharmacy was founded; it was the first association of pharmacists in America.4 As the development of drugs continued, pharmaceutical education developed with a stronger focus on chemistry and standardization.5

Scientists began developing biologicals in the late 1700s and throughout the 1800s. The first diseases these drugs affected were smallpox, diphtheria, and tetanus. Louis Pasteur (1822 to 1895), who is responsible for numerous scientific achievements, discovered that weakened forms of microbes could be used as immunizations for more virulent forms of microbes. His work led to the development of vaccines for chicken cholera, anthrax, and swine erysipelas as well as modern rabies vaccines for humans and dogs.8 In 1903, the first US government inspection and licensure policies were implemented for those manufacturing viruses, serums, toxins, and analogous products.5 The Pure Food and Drug Act, passed in 1906, gave the US government the ability to enforce United States Pharmacopeia (USP) standards and to bring action against those who adulterated or misbranded drugs.3 This act was prompted by the exposure of popular patent medicines for humans and animals as largely ineffective — and sometimes harmful — concoctions.

Until the 1920s in some medical schools and the 1950s in veterinary schools, materia medica (i.e., diluted pharmacy courses) was taught. Materia medica, which has since been replaced by the term pharmacology, was the early study of compounding and preparing drugs, usually from natural sources. After 1920, human medicine grew significantly. The introduction of chemotherapy in 1936 and overall drug industry growth after World War II kept the momentum going. As these changes occurred, a greater emphasis was placed on pharmacology in the medical curriculum. Unfortunately, the veterinary field lagged behind in drug development because of economic factors as well as the fact that the profession was much smaller. After 1950, scientific exploration in the veterinary drug industry began to increase, and although economic and societal factors still contribute to slower progress in this area, significant growth has occurred. During the 20th century and into the 21st century, remarkable changes have occurred in the production and use of human and veterinary drugs.3,4

CONCLUSION

Throughout history, humans have incidentally and intentionally discovered new drugs both in nature and through scientific experimentation. In addition to using plant, animal, and mineral substances exclusively, science has progressed to using these substances as well as their modified forms and laboratory-derived chemical substances. New knowledge in the areas of chemistry, pharmacology, and drug use has led to phenomenal growth in the drug industry. New drugs that are both life enhancing and life prolonging are regularly being discovered and developed. This is an exciting place to be in history because so many beneficial drugs are available and are continuing to be developed. Veterinary technicians can readily appreciate the contribution that drugs make in the care of our animal friends.3,7

REFERENCES