Editorial

A little over a decade ago, one of the editors read and was impressed by an article, “Descriptions in Pathology”, which appeared in the A.M.A. Archives of Pathology [59: 612–617 (1955)]. A reprint of this article has never been far from his desk, and in the intervening years, far from losing its timeliness, the wisdom expressed in these trenchant, witty phrases has come to have increasing significance.

The author, Robert W. Prichard, is Professor of Pathology at the Bowman Gray School of Medicine in Winston-Salem, North Carolina. The editors share his belief that it is hard to get practice in description in the pathology training programs. Yet the need for a guide to concise and lucid expression demands that pathologists in training should have some source to refer to, and we cannot think of a better mentor than Dr. Prichard. At the invitation of the editors, he has graciously consented to have his article reprinted in Pathologia Veterinaria as a guest editorial, and it is a pleasure to express our thanks for his kindness. We also thank Dr. John H. Talbott, who kindly granted permission for reprinting on behalf of the American Medical Association, publishers of the Archives of Pathology.

The article is reprinted essentially unaltered; i.e., the examples which illustrate the author's points are all drawn from human pathology. Our wish was not to tamper with what Dr. Prichard was saying so well; once they grasp his principles, our readers will find it easy to apply them to veterinary pathology.

Descriptions in Pathology
Avoiding Pathological Descriptions

Robert W. Prichard

Surgical house officers tie knots, and budding psychiatrists spend much time capturing ideas in words. But where can one find similar practice in description, a daily chore for the pathologist, in the
pathology training programs? Although we deal in ideas and convey them with words, it is hard to find much in the books and journals devoted to pathology concerning the technique of description. There is a great deal of information available on the technique of autopsy performance, less on the handling of surgical specimens, and almost nothing on description itself. It is apparently general opinion that physicians training in pathology have sufficient command of composition and vocabulary to do a creditable job of recording in words what is found grossly and microscopically, but sample readings from anyone's department will probably change this opinion. Not infrequently one will hear pathologists complaining to one another that clinicians fail to read their descriptions, and call them up about details which they have embedded in their reports. How many clinicians (or pathologists) have the soul and the stomach to read what we grind out in haste and fail to repent at leisure? In this brief communication an outline of one man's technique of description will be presented with the full realization that this is just one man's opinion. Style is too personal to fit hard-and-fast rules.

For the technique of doing autopsies the reader is referred to one of the standard works on the subject, as he is in the handling of surgical specimens. Two of the current works on autopsy technique contain a few paragraphs on description, and it is mentioned in a work on surgical pathology. A book devoted to postmortem descriptions does not deal with description itself. This paper deals only with description.

The recording of pathological material in words is not a literary exercise, but a utilitarian method for the preservation of certain features of gross and microscopic examination. Despite its humble nature, it should be concise, grammatical, and, especially, precise. No interpretation should appear in descriptions, and it is theoretically possible for a person with a command of the language to describe perfectly a surgical specimen or an autopsy, although he knows nothing of its significance. The time such a task would require of the untutored would be great, and special knowledge permits a rapid choice of words. If description and interpretation are intermingled, the total value of the effort declines rapidly; their separation is hygienic, forcing the observer to check himself and to cast the scales of preconceived diagnosis from his eyes. The power of the latter should not be underestimated. For a thousand years anatomists saw pores in the interventricular septum of the heart because they believed...
Galen, and he said pores were there. One good way to foster this objectivity in gross description, until experience makes it second nature, is first, to look the material over, then, describe it as it is gone over a second time, and, finally, read the description back to oneself as the material is scanned again to see if what is described can be demonstrated. The practically universal convention of putting descriptions in the present tense recognizes the necessity of immediate objective description.

Brevity is not only the soul of wit but the sign of a mind in good training when it comes to descriptions in pathology. The beginner, who must grope for words which he wishes would roll off his tongue, stuffs his descriptions full of sentences such as, “When the uterus is opened, it is seen that a polypoid projection of endometrium is present, which when lifted up is seen to attach to the right cornu”. As the final word is reached, one has either lost the reader or bored him. One’s audience is only rarely interested in the mechanics of dissection; they look for one’s findings and know full well that the uterus had to be cut open to see inside it, etc. The sentence would be more readily digestible as, “A polypoid endometrial projection is attached to the right cornu”. It is hard to carry such trimming too far. It is my own view, opposed by some of my colleagues, that it is also superfluous to precede weights and measurements by confession of the act, e.g., “The thyroid weighs 22 gm and measures 5.0 × 3.0 × 1.0 cm”. When one records a weight or measurement, res ipsa loquitur, as our legal confreres would say. In the same vein, it is not a matter of taste to point out that it is sheer redundancy to follow a statement of color by “in color,” as, “The tissue is blue in color”. What else would it be blue in? We are not given to describing the mood in which we find tissue.

The ends of brevity are best served if one launches at a description with an outline of what one will say in mind. For the beginner, a moment of sober reflection before the mouth is opened, or the pen moved, is in order. As I intimated previously, the beginner is anxious to clear the air with a mighty stroke and, in describing things, he often does the “stalling” which ignorance makes necessary by adding a lot of nonessential words. For example, when one begins to describe the general appearance of a cadaver, one should have a mental outline of the features to be recorded—development, nourishment, length, approximate weight and age, race and sex—all in the first sentence. With this outline in mind, and in most other instances it is not so
obvious, it is safe to proceed. In the description of most organs, a
useful outline is an anatomic one, with the features of each organ
described as they would be encountered in anatomic dissection. The
usual procedure followed with various organs is discussed in standard
works on technique.

Having the outline of what one is to say in mind, the next hurdle
is the choice of adjectives to express it, the nouns being fairly easy
to come by. One must plead for the abandonment of poetry. A fairly
small stock of lean and fit adjectives should be collected and cherished
from the first days one is in pathology. The bulk of them should
be common parlance in the medical world, and the remainder, the
best of the newer terms which represent a real advance in communi-
cation. A few words may be used out of the common run which
are nonetheless trade stand-bys, like “grumous” and “whorled,”
while such aberrant terms as “cerise,” “heliotrope,” and “frustums
of cones” are hardly meaningful to the average reader. The
foregoing remarks apply principally to gross description, a field
in which one’s auditors usually consider themselves as competent
as the pathologist. In the case of microscopic description, the
general medical reader expects a steady diet of specialized words
(hence usually does not read it). For our purposes the matter of a
choice of words will be discussed under the headings of size,
shape, color, consistency, and special features, all applying to gross
descriptions primarily. Microscopic descriptions will be dealt with
separately.

Size is conveyed to the reader by weight, lineal measurements
and occasionally volume. Experience is the best guide in a given
instance, and a good starting point for the beginner is a standard
work on autopsy technique. Size strikes different people in different
units, but there is some standardization in pathology. Generally,
organs having a variable or nondescript outline are quantitated for
the reader by weight. For example, there is no point in measuring the
length, breadth, and thickness of a lung, since it varies within wide
limits in the normal; this organ is universally thought of in terms of
weight. On the other hand, an amputated extremity would raise the
question of length in the reader. The heart demands weighing and
measurement of the thickness of its chambers so that the distribu-
tion of weight may be judged. Following is a list of minimum accepted
units of size for various organs (“measurement” indicates linear
measurement):
Heart: Weight, thickness of chamber walls, circumference of valve rings.
Lungs: Weight.
Gall bladder: Length, maximum diameter, thickness of wall, volume of contained bile.
Spleen: Weight.
Stomach: Note as normal, decreased, or dilated, which are really diagnoses but are the only intelligible comments owing to lack of generally known standards. In surgical specimens, length along the lesser and greater curvatures.
Small and large intestines: Same as stomach, with maximum diameter of any dilated or constricted portion.
Appendix: Length and diameter, thickness of wall.
Kidneys: Weight, and usual three dimensions if abnormalities of outline exist.
Urinary bladder: Nothing of it per se, but height above symphysis should be measured or presence below symphysis noted. Thickness of wall may be measured optionally.
Prostate: Weight, whether it is the whole gland or transurethral "chips".
Testes: Weight.
Uterus: Over-all measurements of height, width, and thickness, the last two the maximums; wall thickness, diameter of pars vaginalis and os, depth of cervical and uterine cavities.
Uterine curettings: Volume in milliliters, estimated or measured.
Ovaries: Length, width, and thickness, all maximums.
Uterine tubes: Length and greatest diameter.
Thyroid: Weight and greatest diameters of any nodules present.
Parathyroids: Weight.
Adrenals: Weight and, if abnormal, the measurements stripped of fat.

Greatest diameter of nODULES.

Pituitary: Weight and measurements.
Brain: Weight. Same for surgically removed portion, if of significant size.
Spinal cord: Length, diameter maximums in various regions, weight.
Eyes (surgical or autopsy): Diameter of globe, depth of chambers.
Fragments of intervertebral disc: Weight.
Skin ellipses: Length, maximum width, thickness of subcutaneous tissue, nearest resected margin when a focal lesion is present on the surface.
Breasts: Dimensions of skin ellipse and greatest dimension of attached tissue.
Extremities: Length.

Nondescript portions of various tissues (cortical biopsies, hernia sacs, hemorrhoids, etc.): A variety of approaches is used. The favored ones are a statement of the number of fragments, three-dimensional measurements of the largest piece, weight of the largest piece or an aggregate weight of all.

Above all, one does well to avoid calling things "small," "large," "shrunken," or "enlarged," where possible. Such decisions should be made, of course, but they are expressed best in the diagnosis or discussion. An objective expression of size is a fact, to be doubted...
only by questioning fundamental things about the observer. Later observers may take issue with the interpretation while finding the facts useful; as Buttercup said, "Things are seldom what they seem".

The shape of organs and other specimens is frequently assumed to be normal when it appears so to the observer, and many descriptions omit this quality of a specimen entirely. I think this is often justified, but it never harms to make that decision for the reader by saying, "of the usual shape," or something similar. This is not interpretation; there is no need to recapitulate the history of liver anatomy in every description of a liver, and one has a right to assume a minimum background of knowledge in things written for a special audience; any other attitude would be absurd. When the products of disease or surgery are encountered, it is well to summarize the shape of things in statements, such as "roughly spherical" or "approximately rectangular," rather than trying to picture it completely in a group of complex phrases, since the power of words is limited. It is often in this part of the description that otherwise sound efforts fail for lack of a brief period of quiet contemplation.

Color should be a fairly simple matter, but occasionally it is dealt with unthinking. The matter of unusual color terms has been touched on, and also the redundancy of referring to colors as colors, as though they would be used in any other sense in pathology. The reverse is true; the practice of decorators and paint manufacturers of referring to certain yellow-white paints as "egg-shell" and similar weddings of things and their colors are to be deplored in pathology. Several years ago I heard of someone who considered the abandonment of the usual names of colors for a systematic chart of colors to be referred to by number. This seems to me in the nature of casting pearls before swine, since the matter at hand probably does not need such magnificent quantitation.

Consistency requires only a small vocabulary. Soft, hard, firm, and resilient are useful basic terms, to be modified by slightly, moderately, or markedly. Others are fluid, compressible, and plastic (in the literal sense of being capable of shaping by deformation). This is a good area in which to avoid description by comparison, as dealt with in a later paragraph.

Special features of organs are usually the products of disease and their anatomic location is the first point in describing them, where that is possible. They are then dealt with as specimens in themselves, using the general principles being discussed here.
Microscopic description is probably not as complex as gross description for the beginner. The fundamental need is an outline of what is to be said. The terms are moderately standardized in pathological histology and are derived from one's teacher and a general knowledge of pathology. A good outline is one which follows the microscopic anatomy of the tissue, when it is discernible, focusing initially on pathologic changes. In the case of complete replacement of normal structure, the parallel approach of description of the over-all pattern is followed by details of cytology. Finally, in either case, comes description of special features and occasionally an account of reactions with special stains. An example of a microscopic description of a basal-cell carcinoma of the skin illustrates a description in an instance where appreciable normal tissue is present:

The upper central portion of the dermis is occupied by nests and anastomosing strands of cells, whose peripheral portions are palisaded. The adjacent dermal collagen is compressed in some areas, and in others is replaced by amphophilic material. The cells composing the nests are uniform, with hyperchromatic round nuclei roughly the size of small lymphocytes and scanty, poorly distinguished, faintly basophilic cytoplasm. Mitoses are rare. The skin surface is unremarkable. Normal dermal structures are present at the lateral margins and unremarkable fibroadipose tissue below.

An instance in which normal structure does not furnish a guide is a microscopic description of a biopsy specimen of a glioblastoma multiforme:

The major portion of the tissue is composed of pleomorphic cells without definite arrangement and areas of necrosis with prominent palisading of cells at their margins. Blood vessels, frequently thickwalled, are numerous. A small number of axons, with associated astrocytes, blend with one portion of the tissue. The cells mentioned above range from 1 to 10 times the diameter of an erythrocyte. Their cytoplasmic outline is usually poorly defined, and the nuclei form roughly 60% of the total mass. Individual nuclei are irregularly oval or round, with moderate amounts of chromatin and frequent nucleoli. Mitoses are focally numerous, and often atypical. The cytoplasm is slightly to moderately eosinophilic. In the phosphotungstic acid hematoxylin preparation occasional cells have irregular fibers.

One matter which deserves special attention has been purposely avoided above. That is the serious one of where to get one's supply of words. A teacher of mine said that after he had been in pathology for a few months he found himself rapidly losing appetite and weight. Considering the matter, he soon realized that he had been describing
foul and loathsome specimens as "like a tomato," or "filled with a material resembling pea soup," and so on ad nauseum. He resolved that, even if Virchow's father had been a grocer (an unfounded rumor), he was not so poor in his native tongue and limited in experience of the world as to draw all his descriptive terms from the table. I share his sentiments completely. It certainly is poverty of intellect which makes one fall back on such terms, or sheer laziness. A concise statement of fact is preferable to an example. Many people have pointed out, furthermore, that the wide variation in fruits, vegetables, etc., makes descriptions of things, as "the size of an orange," hazardous, since one never knows from whence the orange comes. To La Fontaine, who said, "Example is a dangerous lure; where the wasp got through the gnat sticks sure," I doff my hat.

Another aspect of description which does not fit conveniently into any of the categories above is that of making up one's mind for the audience. Statements such as "the probe apparently stops at an obstruction in the lumen" are aggravating. If the examiner cannot tell whether it is obstruction, angulation, or his own squeezing that stops the probe, who can? The audience is not interested in one's troubles. If the matter is an insoluble one, such as the true nature of clusters of poorly differentiated cells composing a tumor, they should be described, diagnosed as such, and then a comment made as to possibilities; the description should be spared cries of frustration. The disease of indecision is manifested in other ways in descriptions. In a desire to leave no stone unturned when a matter is in doubt, things are often described in painful detail and statements qualified in one way after the other until the whole description sinks into a morass of conjunctions and adjectives. One must start out boldly, realizing that it is practically impossible to describe all the variations seen and that an adequate compromise is to strike a happy medium and describe what is necessary to convey the essential observations and one's chain of thought. To do otherwise is to share the same uncertainty that makes the beginner anxious to identify every last cell he sees in sections.

A subtle polluter of descriptions is redundancy. A common example, aside from those cited above, is the use of "cut section". Section means to cut, and, further, everyone knows one did not chew the specimen apart or tear it. Properly, such statements are begun in one of several ways, as "The sectioned surface is gray-blue...," or "On section viscid yellow material...".
Certain terms have been abused beyond belief over the years. Dr. Rabson5 has dealt handily with “round cells,” a fine example of loose usage. All manner of cells are round, and, when one wishes, for example, to describe the cells in an exudate, they should be cited for what they are, lymphocytes, plasma cells, macrophages—all have round nuclei—and not for the shape of their nucleus. Lesion is another long-suffering word; like the top of a pole, it cannot stand alone. Webster defines it as any morbid change in the structure of organs or parts, and it is a useful term when properly applied. As an example, consider a skin ellipse bearing an ulcer. If it is described as “A skin ellipse . . . cm with a lesion 1.0 cm in greatest dimension . . . ,” one knows nothing about the “lesion,” since it is not a specific term. Properly, it should be described as “A skin ellipse . . . cm with a central crusted red-black area 1.0 cm in greatest dimension . . . .” after which specific description it is proper to make other statements referring to the ulcer as “the lesion,” since the morbid change has been described. There are many other examples of insensitivity to words, which a small amount of insight will reveal, without laboring the point here.

Describing description soon arrives at the point where diminishing returns are in evidence, and it seems to me that this is it. The whole function is a very personal one, and beyond a few observations and generalities lies the sport itself, where reflection on daily experience is the only help and a good critic an invaluable aid, even if one has to develop into one’s own.

References

COMMENTARY

Pathologic Lesions: They’re the Worst Kind

W. J. Hadlow

Now and again in my reading, I come across the expression pathologic lesions, and I am puzzled by it. I had thought that all lesions, even when not so qualified, where those bodily changes portraying disease and thus rightly pathologic. Alone, lesions could be nasty; they did not need any such adjectival emphasizing to be that way. I can only surmise, then, that pathologic lesions must be much worse than the plain, unqualified ones I am familiar with.

To get a better idea of what they are like, I turned to recent issues of 20 journals, including Veterinary Pathology, and to eight current books, all having some information on the pathologic anatomy of animals. Three to five years worth of most journals were perused; others were looked at less closely over shorter periods. Most books were merely skimmed. From this limited, ad hoc survey, I came up with the following picture of them.

Like the plain ones I know about, pathologic lesions may be macroscopic or microscopic, the more common kind. Mild or severe, localized or widespread, they appear in both natural and experimental diseases. Of the several possible variants that come to mind, only neurohistopathological lesions and immunopathologic lesions are mentioned, the first much more often than the last. As far as I can tell, pathologic lesions occur in most organs (including placenta), typically in more than one at a time. Sometimes even their absence makes them notable. They are found in various domestic, laboratory, and wild animals, namely, mammals, birds, and fishes, and an occasional amphibian. I came across only one report of them in modern reptiles, but they have been seen often in dinosaurs and other prehistoric animals. Quite possibly invertebrates suffer from them as well; yet all I saw in my brief look was pathalogical damage in mussels. Although not my concern here, human beings also have pathologic lesions, usually for the same reasons animals do.

Several things bring them about. The commonest one is infection, mainly viral and ordinary bacterial, often myotic, rarely chlamydial, rickettsial, mycoplasmal, ureaplasmal, or protozoal. Once in a while worms, round or flat, are the culprit. At times toxicoses and nutritional deficiencies or imbalances may account for them. Hereditary disease and immunologically mediated disease can bring them to light now and then. So, too, can heat and mechanical trauma. Rarely, congenital malformations are embodied by them. Curiously, the neoplastic process, except when induced by viruses in birds and mice, or when associated with some lymphoproliferative disorders, never seems to give rise to them, even if it behaves badly.

Contrary to what I had been led to believe, pathologic lesions are not all that common; surprisingly few authors recognize them. For example, two bimonthly journals that regularly contain a lot on morbid anatomy average two papers about them a year in the last five. In the same period, a biweekly, whose content of similar offerings varies greatly from one issue to the next, averages three a year. A monthly largely devoted to experimental studies, many with laboratory animals, has four papers mentioning pathologic lesions in each of the last four years. Reporting them up to four or five times a year are three quarterlies that seldom have much on the morphologic changes of disease. Two journals that invariably do stand apart from the others. One, a monthly, has six papers describing pathologic lesions in one year and eight in another, two years apart. The other, a quarterly, has seven in one year and nine in the next. Offsetting these are several journals that report them once or twice a year and then skip a year or two before doing so again. A few say even less about them. Yet all 19 journals dealing with diseases of vertebrates have at least one paper referring to them in the last four years. And all eight books cite them one or more times.

Thus, pathologic lesions are all about these days, as indeed they have been for some time. But they are still generally sparse. This sparsity is reassuring, for it indicates they are not driving plain lesions out, as one commentator feared they might if allowed to go unchecked. Moreover, as it turns out pathologic lesions are no different from plain ones; at least I found nothing important separating them. So, it is not some mystifying morbid entity that must be reckoned with, just an absurd expression that keeps showing up on the printed page. Of the same genre, though seldom appearing in print, are pathologic damage, pathologic abnormalities, and abnormal histopathologic features. (Pathologic disease, actually seen twice in a first-rate journal, stands alone.)

Typically, the expression appears in the sort of general, collective statements more likely found in the Abstract, Discussion, and Summary than elsewhere in a paper. Plain lesions aptly described in Results suddenly become pathologic ones when dealt with in those sections. More startling is the transformation that takes place in the course of a single paragraph, or even a single sentence; pathologic changes become pathologic lesions without the slightest warning and when least expected. Clearly, for some authors either way will do. The few times the expression appears in the Introduction or is hidden in small print in Materials and Methods, it might escape notice. Then, too, it occasionally finds its way into titles of papers (always noticeable), main headings, titles of tables and their column headings, legends to figures, and
prefaces of books. Even an acknowledgement for help in interpreting pathologic lesions mentions it.

Most authors use the expression sparingly—usually but once in a single paper. Many others, though, like to have it appear at least twice. Fewer settle for three or four times. A few favor it. Having used it in one paper, they can be counted on to do so again in others, up to five times and not always in the same journal. Yet only exceptionally does the expression seem truly entrenched in the author's lexicon. For instance, it is mentioned seven, eight, and nine times in three separate papers and at least 20 times in one chapter of a new book. It is also used 20 times in a recently reprinted 70-year-old monograph on diseases of ancient times—indicating that pathologic lesions not only were plentiful long ago but also were written about long before now.

My intent in offering this commentary is simply to draw attention to the needless modifier in the expression pathologic lesions. In either the short or the long spelling, it is a prime example of tautology—the wordiness that pervades present-day discourse. Granted, a certain naturalness about the expression, spoken and written, no doubt fosters its unmindful use time and again. But the two words in it ought not to be brought into such a hapless, pleonastic union, however easily they come together in that way. After all, from the start a lesion is a thoroughly pathologic change. So it stands firmly on its own; it needs no support from intensifying verbiage to be like that.

When would-be pathologists not too familiar with the proper lingo use the pleonasm, which is often enough, the occasion might be overlooked as an honest mistake. Not so when full-fledged pathologists do; they are expected to show more care and thought in handling the specialized vocabulary of pathology. But in any case, only when the expression is used in excess or in titles and main headings does it become much too blatant to let slip by for what it usually appears to be—a momentary lapse in diction. Seemingly, it happens more or less unconsciously as a kind of verbal tic.

Possibly I make too much of this redundancy in writings on animal disease. Sure, far more distracting gaffes in expository prose, especially those having a greater effect on readability, are found nowadays in such publications. Yet authors and editors who care about language will want to avoid the expression, for however uncommon pathologic lesions may be, they’re the worst kind—rhetorically if not otherwise. It’s a notion worth considering.

References
1 Ellner HJ: Pleonasties, Verbatim 7:6-7, 1981

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COMMENTARY

Dubbing Animal Diseases with Color

W. J. Hadlow

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Over the years, color has figured often in naming animal diseases. Traditionally, it has drawn attention to some identifying colored feature obvious clinically or at necropsy when little was known about the disease. Although few color-bearing names may come to mind, a surprisingly large number of them are out there. Far more (at least 30) have been given to diseases of livestock than to those of any other group of animals. Even so, diseases of other animals, notably fish and shellfish, haven’t been overlooked. Who coined these names, some dating from the last century, is seldom certain. But in all likelihood, veterinarians have had less to do with it than everyone else looking after affected animals.

Some epithets fashioned with color have been popular for a while but often only in certain places, where they have been useful colloquialisms in everyday reference to a disease. Others more widely favored have lasted longer before losing their luster. At best, they are remembered as erstwhile names or synonyms in dictionaries or by persons who have some feel for history. Several, however faded they may now appear, are still around, turning up repeatedly in both speech and print. Indeed, a few diseases having no other familiar names are commonly known by them. Bluetongue of sheep is one, Red-Leg of frogs another.

Of the nine or so colors in names I gleaned from sundry sources, black appears often. Heading the list is Blackleg or Blackquarter, the familiar tag given long ago to the clostridial disease of ruminants. It proclaims the darkened, blood-stained, crepitant inflammatory lesion in skeletal muscles, notably those of the limbs. Black Disease of sheep, another clostridial disease, owes its name to the severe venous congestion and cyanosis of the subcutis along with hemorrhage in the abdominal muscles that blacken the underside of the skin, most apparent when it’s laid back within a few hours after death. In turkeys affected with histomoniasis, the highly vascular, near-naked carunculated skin of the head and neck of older pouls and adults becomes deeply cyanotic in the terminal stage of the disease, giving it the name Blackhead. A misnomer some say, for blackening of the head seldom super-

vens. That may be mostly so in young pouls before they acquire the fleshy furnishings of the head and neck when about three months old. Cyanosis also accounts for blackening of the tongue that is a feature of the severe stomatitis in dogs suffering from niacin deficiency, known as canine pellagra or Blacktongue.

Other names in black have to do with dark pigmentation. Black Liver Disease is a mutation in Corriedale sheep that affects hepatic excretory function and leads to the accumulation of a melanin-like pigment in the liver, blackening it. A black spot in the trauma-induced deep, crater-like ulcer at the tip of the teat of dairy cattle gives this uncommon lesion the name Black Pox. Melanin accumulates around the metacercariae of several species of digenetic trematodes that encyst in the skin of freshwater and marine fish, begetting the popular sobriquet Black Spot Disease. Likewise labeled is a nonlethal condition commonly affecting the widely cultured giant freshwater prawn. Making it so are small irregularly shaped black spots that appear in the outer cuticle, which represent melanized inflammatory foci brought about by bacteria and fungi invading superficial wounds. In young trout disabled by whirling disease caused by the protozoan Myxobolus cerebralis, abnormal activity of caudal pigment cells blackens the caudal peduncle and tail, called Blacktail Condition. A rapidly advancing fatal dermatitis of farmed Dover sole infected with a Flexibacter columnaris-like bacterium is known as Black Patch Necrosis. The term refers to the darkening of the skin between the caudal and marginal fin rays that progresses from initial swelling and then sloughing of the epidermis to hemorrhagic ulcers penetrating the dermis and subjacent muscle. An ascorbic acid deficiency syndrome causing high mortality in cultured juvenile penaeid shrimp of several species is dubbed Black Death Disease. The name comes from the large black (melanized) necrotic foci that occur in the gills, walls of the stomach and hindgut, and subcuticular tissues without erosion of the cuticle in shrimp dying of the disease.

Horses incompacitated by azoturia excrete myoglobin in the urine, making it appear coffee-colored, for
which the disease was called Black Water years ago. Because of the explosive expulsion of dark greenish-black watery feces by dairy cattle during outbreaks of winter dysentery, Black Scours aptly names the disease ascribed to infection with bovine coronavirus. Black Scours is also a synonym for spirochete-caused swine dysentery of growing pigs. Their near-watery feces containing blood, shreds of tissue, and much mucus appears blackish, especially when the diarrhea is protracted.

Just as numerous are names in white, some having more sheen than others. No doubt the best known one is White Muscle Disease. It denotes the blanched patches and streaks of degenerative changes in skeletal muscles (and often in the heart as well) that typify nutritional myopathy, the vitamin E/selenium deficiency disease most commonly seen in calves, lambs, and foals. White Liver Disease, probably a toxic hepatopathy, occurs in cobalt-deficient sheep and goats that become anemic, lose weight, and have greatly enlarged, grayish, lipid-laden livers. In Oregon, the White Eye Calf Syndrome of uncertain genesis affects full-term calves, stillborn or born weak and unable to stand, that usually have congenital cataracts and rarely survive. White Line Disease is a foot disease of sheep and cattle in which the wall of the hoof separates from the sole along the white line or white zone (the junction of the wall laminae and the sole epidermis), forming a cavity that fills with dirt, leads to infection, and causes lameness. Cholangiohepatitis with severe intrahepatic cholestasis and a gallbladder containing clear mucoid fluid devoid of bile pigments make up the White Bile Syndrome of cats.

Bacillary White Diarrhea is the name originally given to pullorum disease of chickens because of chalky-white excreta often collects in and around the vents of newly hatched chicks succumbing to infection with Salmonella pullorum. Profuse yellowish-white, watery diarrhea affecting neonatal calves and piglets is called White Scours, which may have a dietary or an infectious origin. Because tiny grayish-white spots coalescing into large crusty patches first appear on the combs of chickens affected with favus caused by Tri-chophyton megnini, an old synonym for this dermatomyositis is White Comb. Freshwater fish, especially those in aquariums, are often infected with the ciliated protozoan Ichthyophthirius multifiliis. Its trophonts develop within epidermal capsules or vesicles, appearing as tiny elevated white dots on the skin likened to a sprinkling of coarse sand, from which the disease takes its name White Spot Disease. The copious secretion of mucus by carp infected with Pseudomonas fluorescens forms a thick film over the body, making the fish appear as though it were enveloped in a white cloud—a good reason for calling the condition White Cloud Disease.

In white Shorthorn cattle, the frequent occurrence of anatomical abnormalities in the female genital tract, imperforate hymen for one, led to the designation White Heifer Disease for the presumed genetic defect arresting development of the Mullerian ducts. Lethal White Foal Syndrome names the lethal outcome of the autosomal dominant white haircoat gene in the horse. Embryos homozygous for the gene die early in gestation, contributing to lowered fertility in the white horse called Albino, the heterozygote. Sometimes included in that epithet is the much different Overo Lethal White Foal Syndrome in which most white foals from matings of overo spotted horses, though born alive, fail to survive because they have congenital arrest of the colon and lack myenteric ganglia. Whole body tremor of sudden onset occurs in young adult dogs of several small breeds, especially those with a white haircoat, such as the Maltese Terrier, West Highland White Terrier, and Poodle. Considered an expression of an immunologically mediated neurotransmitter defect, it’s called the White Dog Shaker Syndrome or the White-Shaker Dog Syndrome. Take your pick.

The gray area between black and white provides several appellatives. Not otherwise known in polite parlance is Gray Diarrhea, an etiologically obscure disease of ranch mink that have ravenous appetites, pass large amounts of gray, fetid feces, and ostensibly die of starvation. In the Collie dog, an autosomal recessive lethal trait made apparent by cyclic neutropenia, among other pathologic changes, results in overwhelming bacterial and fungal infections in newborn pups. Their telltale diluted coat color varying from dark pewter gray to silver accounts for labeling the genetic defect the Gray Collie Syndrome. The occasionally fatal herpesvirus-associated dermatitis that appears as papules and spreading grayish plaques of superficial epidermal necrosis sometimes covering much of the skin of captive-raised young green sea turtles is called Gray Patch Disease. Metacercariae of the digenetic trematode Neodiplostomum perlatum form tiny (about 2 mm) spherical or ellipsoidal cysts in the skin of the head and body, fins, and musculature of carp. Those in the skin make it look as though it were infiltrated with small gray pearls, prompting the epithet Gray Pearl Disease for this parasitic condition. Popularly named Gray Crab Disease is the grayish or translucent appearance of the ventral surface of the body and appendages of the blue crab infected with Paramoeba pervicosa, which parasitizes the connective tissues and hemal spaces.

Giving richer color to the names than the neutral black, white, and gray are the primary colors: blue,
red, and yellow. They embellish many appellatives, highlighting an array of pathologic features.

As with black, some of the many blue names refer to cyanosis, only now made apparent or perceived in a less somber tone. Foremost is Bluetongue of sheep, cattle, and some wild ruminants infected with the arthropod-borne orbivirus. Often, but not invariably, included with the characteristic hyperemia, hemorrhage, and edema of the oral mucosa, especially in sheep, is a greatly swollen, cyanotic tongue, giving the disease its common name. The purerate mastitis of lactating ewes, mainly caused by Pasteurella haemolytica, is dubbed Bluebag, even though the inflamed gland turns blue only when gangrenous. For the same reason, a comparable severe mastitis in lactating doe rabbits, usually attributed to staphylococci, is known as Blue Breasts. A springtime disease of horses in the United Kingdom, Blue Nose most likely is a primary photosensitization that causes dermatitis of the face, making it appear cyanotic early on, with sloughing of the skin later.

Another name for the highly contagious coronavirus enteritis of turkeys is Bluecomb Disease, presumably because cyanosis of the head is a common clinical feature. But that may not be the whole story, for turkeys don’t have combs to turn blue. Early observers of the disease likened it in a general way to the now rare and quite unrelated causally vague pullet disease of chickens known as Blue Comb because the comb and wattles become shrunk and cyanotic. Described as the Blue Disease in older works on diseases of cattle is the cyanotic state of some calves born with a patent foramen ovale. Bluish discoloration (cyanosis) of the ears that shows up during the respiratory disease of young pigs infected with the virus of porcine reproductive and respiratory syndrome gave the disease its early alias, Blue-Eared Pig Disease. In young chickens immunosuppressed by infection with the chicken anemia virus, ecchymotic hemorrhages on the wings, often with supervening gangrenous dermatitis, make them appear dark blue, whence the name Blue Wing Disease for this fatal condition. It’s one of the more picturesque portrayals of a morbid entity, I think.

Blue Dog Disease, a congenital ectodermal defect manifested by alopecia, brittle hair, and scaly skin, occurs in coat color mutants of several breeds of dogs, most notably the blue Doberman. Before the defect was found in breeds other than the Doberman, it was called more exclusively the Blue Doberman Syndrome. Affecting ferrets of both sexes is a curious idioopathic condition dubbed the Blue Ferret Syndrome, most commonly seen after the abdominal skin is clipped, as for surgery, during the resting phase of the hair cycle. The clipped skin remains hairless for a long time and then suddenly turns blue, the hair growing back a week or two later. Making up Blue Spot Disease in the northern pike infected with a herpesvirus are bluish-white, flat, granular hyperplastic epidermal lesions 3 to 10 mm in diameter that occur mainly on the dorsal skin and fins. In some cultured salmonids, notably brown trout, on biotin deficient diets, goblet cells in the epidermis undergo hyperplasia and secrete a large amount of abnormally tenacious mucus. It forms a bluish film over the body—a condition popularly known as Blue-Slime Disease, an apt if inelegant epithet. Blue Shell Syndrome and Sky Blue Shrimp Disease are two of several names given to a carotenoid/vitamin A-responsive condition causing pale coloration of cultured penaeid shrimp whose cuticular chromatophores then have mostly blue pigment granules and few if any black, red, or yellow ones.

Various dissolved constituents in the water supply of fish hatcheries cause the yolk sac of larval salmonids to become swollen, deformed, and discolored bright blue to gray, a disorder known as Blue Sac Disease. A recently described parvovirus infection of baby pigs in Mexico that leads to encephalomyelitis and corneal opacity is referred to as Mexican Blue Eye or Blue Eye Syndrome. Or it’s just called Blue Eye, like the edematous corneal opacity in dogs convalescing from infectious canine hepatitis.

Adding more vivid color to the by-names of many diseases is red in its various shades conferred by hyperemia, hemorrhage, or hemoglobin. Infectious bovine rhinotracheitis, now considered bovid herpesvirus 1 infection, was first called Red Nose, for the muzzle of affected cattle is prominently hyperemic underneath the exudate encrusting it. The markedly erythematous infested skin of young dogs suffering from generalized demodicosis makes Red Mange a suitable common name for this serious parasitic dermatitis. Besides cutaneous and oral vesicles and bullae, a fatal hereditary mecanobullous disease of newborn lambs is made apparent by loosening and shedding of the hoof horn, exposing the bright red corium, for which the disease is termed Red Foot. In weaned lambs that die suddenly while grazing alfalfa or while feeding in creeps, torsion of the mesentery deeply reddens the distended intestinal mass drained by the cranial mesenteric vein. Thought to result from instability of the intestine brought on by rich gas-producing feed passing rapidly through it, this catastrophic condition is designated the Red Gut Syndrome.

Red-Leg of frogs, a septicemic disease caused by Aeromonas hydrophila and other saprophytic Gram-negative bacteria, got its common and only name long ago from the hemorrhages that occur on the abdomen and legs, turning the skin light red to deep scarlet. Aeromonas hydrophila also causes a common bacte-
remic disease in a variety of freshwater fish. It's named Red-Sore Disease after the focal hemorrhagic necrosis of the epidermis that progresses to deep ulcers penetrating the musculature. Hyperemia leading to hemorrhagic ulceration of perioral tissues is the distinctive, if not constant, lesion that bestows the label Red Mouth or Enteric Red Mouth on the septicemic disease of younger rainbow trout infected with *Yersinia ruckeri*. Widespread hemorrhage, necrosis of splenic and renal hemopoietic tissue, and focal necrosis of muscle underlying cutaneous vesicles (misnamed furuncles) that ulcerate warrant assigning the name Red Plague to furunculosis of salmonids, a bacteremic disease caused by *Aeromonas salmonicida*. In the Japanese eel, a major septicemic infection with *Pseudomonas anguilliseptica* is dubbed Red Spot Disease because characteristic petechiae, arising from dilated epidermal and dermal capillaries, dot the surface of the body near the time of death.

Hemoglobinuria from often massive intravascular hemolysis happens so consistently in bovine babesiosis, especially when attributed to *Babesia bigemina*, that the disease is commonly called Red Water. For the same reason, it’s a well-known synonym for bacillary hemoglobinuria of cattle infected with *Clostridium hemolyticum*. Even leptospirosis in calves has been called Red Water by some observers, for hemoglobin reddens the urine in the acute disease caused by *Leptospira pomona*. The name has also been given to so-called nutritional hemoglobinuria of cattle and sheep feeding on *Brasista* spp plants that cause hemolytic anemia. So, too, is the occurrence of hematuria designated Red Water in early descriptions of cystitis in cattle.

A disorder of pigmentation in dogs brought about by low-protein diets and general malnutrition is the Red-Hair Syndrome, so named because hair on the paws, ventral abdomen, and flanks turns red-brown.

On the lighter side are names cast in pink. A well-known one is Pink Eye. In cattle affected with infectious keratoconjunctivitis caused by the bacterium *Moraxella bovis*, it betokens the hyperemia of the inflamed eyes and eyelids. Answering to Pink Eye as well is a similar ophthalmic disease of sheep and goats that variously results from infection with a chlamydia, a mycoplasma, or a rickettsia. And for 100 years, conjunctivitis has also qualified Pink Eye as a sometime synonym for an acute disease of horses known in the early days as influenza and now ascribed to infection with equine viral arteritis virus. The term Pink Disease or Pinks points up the pinkish tinge of fat and skeletal muscles, imparted by congested small blood vessels in otherwise pale tissues, seen in broilers and pullets dying of the fatty liver and kidney syndrome, a biotin-responsive metabolic disorder.

Porphyrin discolors dentin and bone pinkish-red to brownish-red in cattle born with congenital erythropoietic porphyria, making Pink Tooth as good a common name as any for this autosomal recessive trait. The chronic hepatogenous photodermatitis that supervenes in cattle feeding on the shrub *Lantana camara* is dubbed Pink Nose, for the skin of the muzzle becomes completely detached, leaving a raw, pink, painful surface. The Pinky Syndrome, an idiopathic non-inflammatory leukoderma, occurs in young Arabian horses as round depigmented macules and patches on the muzzle and lips, around the eyes, and occasionally on the vulva, prepuce, anus, and hooves. Likened to vitiligo in human beings, it gets its name from the grayish-pink hue of the “faded” areas of skin lacking melanin. With prolonged wetting of the skin, various chromogenic bacteria cause a superficial dermatitis that discolors and mats the wool of sheep, a condition known as fleece rot. It’s called Pink Rot when the fleece is discolored by the red pigment of a spore-forming bacillus, probably a variant of *Bacillus subtilis*.

Yellow brightens the epithets of other diseases or syndromes, often in reference to icterus arising from hepatic injury. The classic name taken from icterus, of course, is Yellow Fever, which for centuries has identified the human viral disease. Prefaced by Jungle, it also befits the naturally occurring counterpart in African and New World monkeys, though icterus is not as prominent in the simian disease as it is in the human one. In some quarters, leptospirosis in dogs and pigs infected with *Leptospira icterohemorrhagiae*, known to cause icterus, is simply called Yellows, as other hepatopathies attended by icterus often were in bygone days. Similarly, in Scotland Yellowses names the photodermatitis and generalized icterus secondary to hepatic damage seen in lambs feeding on the European bog asphodel *Narthecium ossifragum*. Another hepatogenous photosensitization in sheep (and goats) is Yellow Thick Head, long known in South Africa as geeldikkop. The term denotes the intense generalized icterus and edema of the head that distinguish the disease in animals consuming *Tribulus terrestris*, an annual herb. The same disease, known as Yellow Big Head in Australia, is seen in sheep grazing *Panicum* spp grasses there and elsewhere. In the western United States, Yellow Lamb Disease is so named because generalized icterus that accompanies hepatic necrosis and intravascular hemolysis is prominent in nursing lambs succumbing to *Clostridium perfringens* type A enterotoxemia.

But not all yellowed labels are made so by icterus. The inflamed adipose tissue discolored tan-yellow by lipofuscin/ ceroid gives the name Yellow Fat Disease to nutritional steatitis of mink, cats, swine, and a few other animals on diets high in unsaturated fatty acids.
and deficient in vitamin E. As an expression of molybdenosis, most likely resulting in secondary copper deficiency, that commonly affects nursing calves in Hawaii, a syndrome comprised of diarrhea, unthriftness, and a straw-colored haircoat is called Yellow Calf Syndrome. Metacercariae, the “yellow grub,” of the digenic trematode Clinostomum marginatum encyst in the integument, viscera, and musculature of freshwater fish, causing unsightliness and sometimes much tissue damage—a condition known as Yellow Grub Disease. A viral infection (probably a rhabdovirus) that causes extensive losses in the black tiger shrimp cultured in South East Asian countries is named Yellow Head Disease. The cephalothorax and gills become discolor ed pale yellow to yellow-brown along with degeneration and multifocal necrosis of many organs. A somewhat different yellowing occurs in Gold Dust Disease of tropical freshwater aquarium fish whose skin and gills are infected with Piscinoodinium spp, a dinoflagellate. Heavy infections of the skin with the yellow-green trophonts give it a pale yellowish velvety appearance likened to a dusting with powdered sulfur or perhaps even with powdered gold, whence the lustrous label.

The secondary color, green, adorns a few appellatives. Green Muscle Disease is another name for deep pectoral myopathy that occurs in turkeys and heavy meat-type chickens, usually as a consequence of excessive wing flapping. The well-demarcated part of the fascial-confined deep pectoral (supracoracoideus) muscle that undergoes ischemic necrosis eventually turns green, hence the verdant caption. The expression Green Leg or Green Legs designates the disability of older broilers and roosters, in which green or bluish-green discoloration appears where the tendon of the gastrocnemius muscle, for nebulous reasons, ruptures just above the hock. A strange condition of unknown cause reported from Sweden and Canada, the Green Pike Syndrome is distinguished by green discoloration of the northern pike, affecting it generally or only about the mouth.

In all its tints, brown also adds color to only a few names. The Dalmatian Bronzing Syndrome is a presumed metabolic dermatosis peculiar to the Dalmatian dog that shows up as partial alopecia, reddish-brown discoloration of the white hairs, papules, and small urticarial wheals involving much of the skin. When the normally soft blue (male) or pinkish (female) cere of psittacine birds, notably budgerigars, for unknown reasons becomes enlarged, keratinized, and discolored brown and sometimes occludes the nares, the condition is called Brown Hypertrophy of the Cere. Nitrite resulting from the oxidation of ammonia in the environment causes methemoglobinemia in fish. It’s commonly known as Brown Blood Disease because the blood turns brown, apparent clinically in the distinct browning of the normally rich red gill tissues.

Alone in its spot on the palette of colorful appellatives is Lavender Foal. It identifies a poorly understood, presumably hereditary, lethal neurologic disease of newborn Arabian foals. Their dilute colored haircoat, looked upon as bleached or washed-out by some observers, takes on a lavender hue, more or less.

These, then, are examples of the varied ways, some truly imaginative, animal diseases have been dubbed with color.

So what is all this ado about the time-honored practice? If nothing else, I think putting color in the names gives them a certain charm not found in today’s bland scientific designations. Take for example Yellow Fat Disease versus nutritional steatitis or Green Muscle Disease versus deep pectoral myopathy. And in their likable simplicity, colorful labels are easily remembered: they are handy to have for everyday discourse, casual and professional alike. Moreover, they are not without some meaning to both clinicians and pathologists, even though such appellatives seldom, if ever, convey the real nature of the disease. Then, too, the aptness of some dyed names, however well entrenched, may be questioned, for as it turns out the coloration providing them is often absent. But that detracts little from their virtue. Like eponyms, color-bearing names need not be descriptive of the whole disease to have merit.

Still, all this may be reason enough to look upon them as fanciful and trifling—so much vintage vocabulary no longer useful or needed in these times of rapid changes in our understanding of diseases. Indeed, because nowadays the essence of any new disease is often defined quickly, it soon has a name appropriately cast in strict technical terms. So now more than earlier, a disease is less likely dubbed with color, maybe even temporarily, let alone given a pigmented moniker that finds a lasting place in the veterinary lexicon. Yet amid all the current clamor for precise nomenclature, I hope color continues to have a part in dubbing animal diseases, if only to provide nicely tintured nicknames for casual use. The quaint custom still has its appeal, really.