preferably in the range of about 0.3 to about 0.8 inch, and optimally about 0.61 inch. Preferably, radius r_2 evidences a larger radius and is typically on the order of between about 0.2 to about 2.5 inches, more preferably in the range of about 0.5 to about 1.5 inch, and optimally in the range of about 1.2 inch.

Surface **214** preferably also is defined by a radius r_3. Typically, radius r_3 is on the order of about 0.2 to about 1.0 inch, more preferably in the range of about 0.3 to about 0.8 inch, and optimally about 0.57 inch.

Preferably, leading edge **213** is also suitably rounded and is defined by a radius defined by its diameter. Preferably, leading edge **213** evidences a diameter in the range of about 0.2 to about 2.0 inches, more preferably in the range of about 0.4 to about 1.0 inch, and optimally about 0.55 inch.

As illustrated in FIG. **14**, lobe **244** preferably evidences an enlarged diameter preferably on the order of about 0.2 to about 2.5 inches, more preferably about 0.5 to about 1.5 inch, and optimally about 1.1 inch. Similarly, enlarged region **246** preferably evidences an enlarged diameter which is on the order of about 0.2 to about 2.5 inches, more preferably in the range of about 0.5 to about 1.5 inch, and optimally about 1.0 inch.

Probe **210** preferably includes a first axial bore **226**, a opto-electronic receiving cavity **228** and a second axial bore **230**. Bore **226** is preferably threaded for, as will be discussed in greater detail below, receipt of handle **211**. Cavity **228** preferably is configured centrally of lobe **244** and preferably communicates with at least one of the outer surfaces thereof. Bore **230** preferably communicates with leading edge **213** at a first end and with cavity **228** at a second end. The first end of bore **230** is suitably designed for receipt of, for example, a temperature measuring device (e.g. a thermistor (not shown)). Similarly, a void **232** is suitably designed to receive thermal-conductive material which allows heat to pass to the temperature measuring device. The thermal-conductive material allows the temperature measuring device to obtain more accurate temperature readings.

With reference to FIG. **16**, handle **211** preferably comprises a grip section **242**, a thumb indentation **244**, a threaded section **246**, a leading edge **248**, and an alignment stripe **250**. Threaded section **246** is suitably configured for receipt in threaded center bore **226**, thereby securing handle **211** within probe **210**. Handle **211** preferably includes an axial bore **269** suitably sized for passage of electrical wires and the like. Alignment stripe **250** aids a person (e.g. a doctor, technician or the like) in inserting the probe into the rectal canal at the correct angle, and is preferably aligned with the top center part of probe **210**.

Cavity **228** is suitably dimensioned to receive an opto-electronic assembly **260**. With reference to FIG. **15**, assembly **260** preferably comprises a housing **262** including a central bore **264**. As illustrated, housing **260** preferably comprises a generally cube-shaped base having a bottom and respective side walls which terminate in an arcuately shaped top **266**. An emitter assembly **234** and a detector assembly **236** are suitably positioned adjacent top **266**. Preferably, assemblies **234** and **236** are positioned such that the opto-electro components are directed toward top **266**. Respective passageways **268** and **270** communicate with bore **264** and serve to permit passage of wiring from assemblies **234** and **236** to bore **264**.

As discussed hereinabove with respect to probe **110**, the spacial and angular orientation of assemblies **234** and **236** may vary based upon the type of animal, location of the probe, etc. In accordance with a preferred aspect of this embodiment of the invention and with continued reference to FIG. **15**, emitter **234** and detector **236** are preferably positioned parallel to each other and parallel to a center line **237** of housing **260**.

Housing **260** is preferably inserted into cavity **228** such that emitter **234** and detector **236** are suitably positioned near a surface of lobe **244**. When housing **260** is so positioned, respective voids **238A** and **238B** may be evidenced due to the gap between the top of emitter **234** and detector **236** with reference to the outer surface of lobe **244**. In order to ensure lobe **244** has a generally smooth surface, voids **238A** and **238B** preferably are filled with a transparent epoxy or the like to protect emitter **234** and detector **236** but allow the necessary light to pass therethrough.

In use, probe **210** is first assembled by inserting the various components. In accordance with a preferred aspect of this embodiment of the present invention, housing **260** containing opto-electro components **234** and **236** is preferably inserted into cavity **228**. Necessary electrical wiring is provided. Such electrical wiring may be passed through various passageways contained within probe **210** and handle **211**. Handle **211** is suitably attached to probe **210** by screwing threaded section **246** into thread receiving bore **226**. If desired, additional elements such as a temperature measuring device (not shown) may be added, such as in receiving bore **230**.

Once so assembled, probe **210** may be inserted into an anatomical canal, such as the rectal canal of an animal or human. In accordance with a preferred aspect of this embodiment of the present invention, probe **210** so configured is suitable for use in connection with dogs, horses, birds and the like. In accordance with such applications, probe **210** is first inserted into the rectal canal of such animal. In particular, leading edge **212** of probe **210** is first inserted into the opening of the rectal canal. Further insertion causes surface **214** to contact the sphincter muscle located in proximity to the opening of the rectal canal. Such contact causes the sphincter muscle to dilate and therefore permit passage of lobe **244** further into the rectal canal. As lobe **244** passes therethrough, the sphincter muscle tends to contract and surround surface **216** of segment **240** of probe **210**. Further insertion of probe **210** is inhibited by enlarged region **246**. With the sphincter muscle constricted about surface **216**, opto-electro elements **234** and **236** are suitably deployed in the direction of the generally vascular blood profuse sphincter muscle. Reflectance oximetry measurements can thereby be obtained. In the event probe **210** is provided with a temperature measuring device, in addition, temperature measurements from the rectal canal can be reliably obtained.

It will be understood that the foregoing description is of preferred exemplary embodiments of the invention, and that the invention is .not limited to the specific forms shown. Various modifications may be made in the design and arrangement of the elements set forth herein without departing from the scope of the invention as expressed in the appended claims.

We claim:

1. A probe useful for invasively monitoring at best the oxygen saturation level of blood in at least one tissue wall of an esophagus, the probe comprising:

a chassis having a proximal end and a distal end;

an electrical connector extending from said proximal end of said chassis and terminating at a plug configured for connection to a pulse oximeter box;

an optics assembly configured to generate and transmit electrical signals to said oximeter box, said signals